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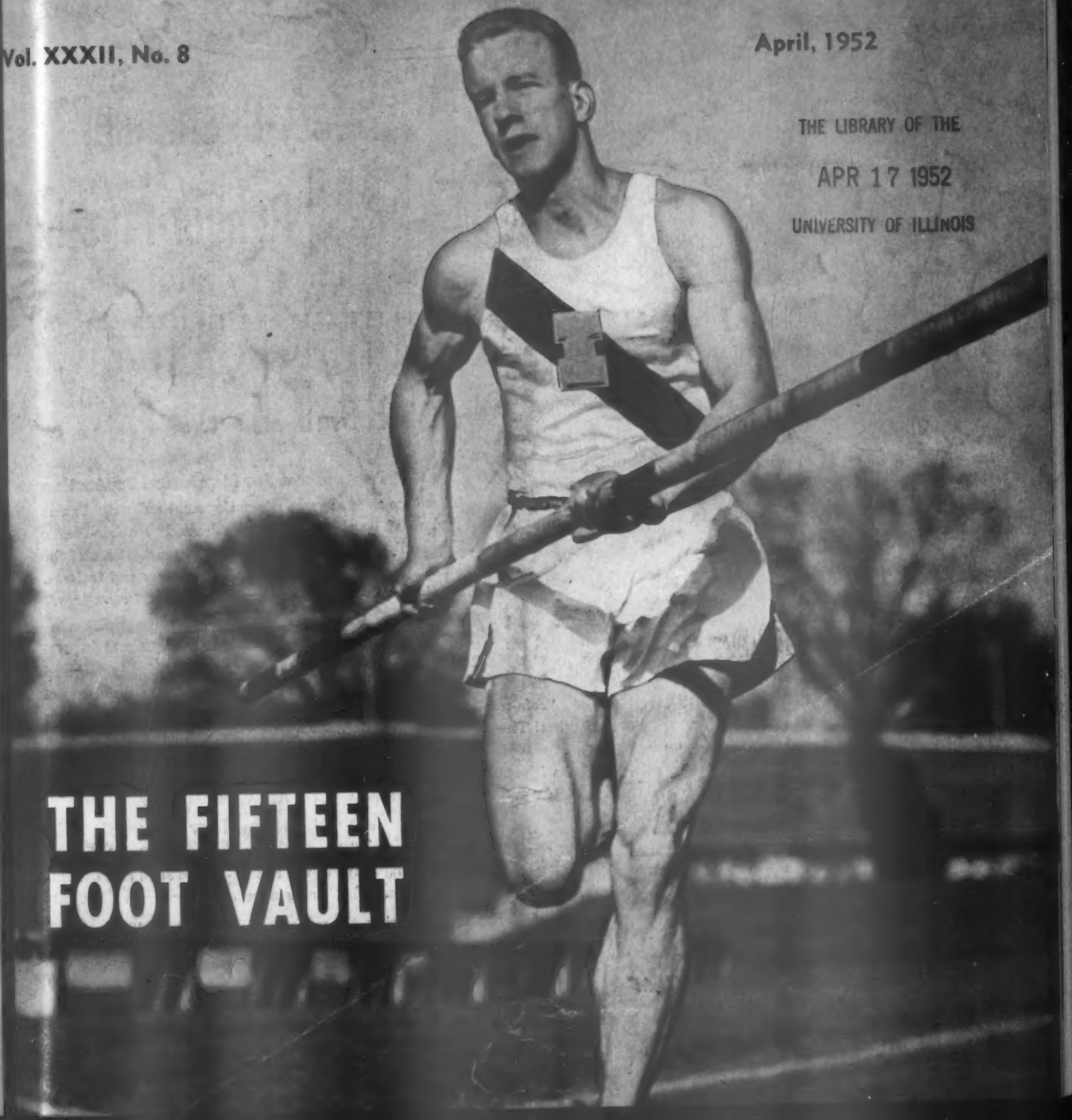

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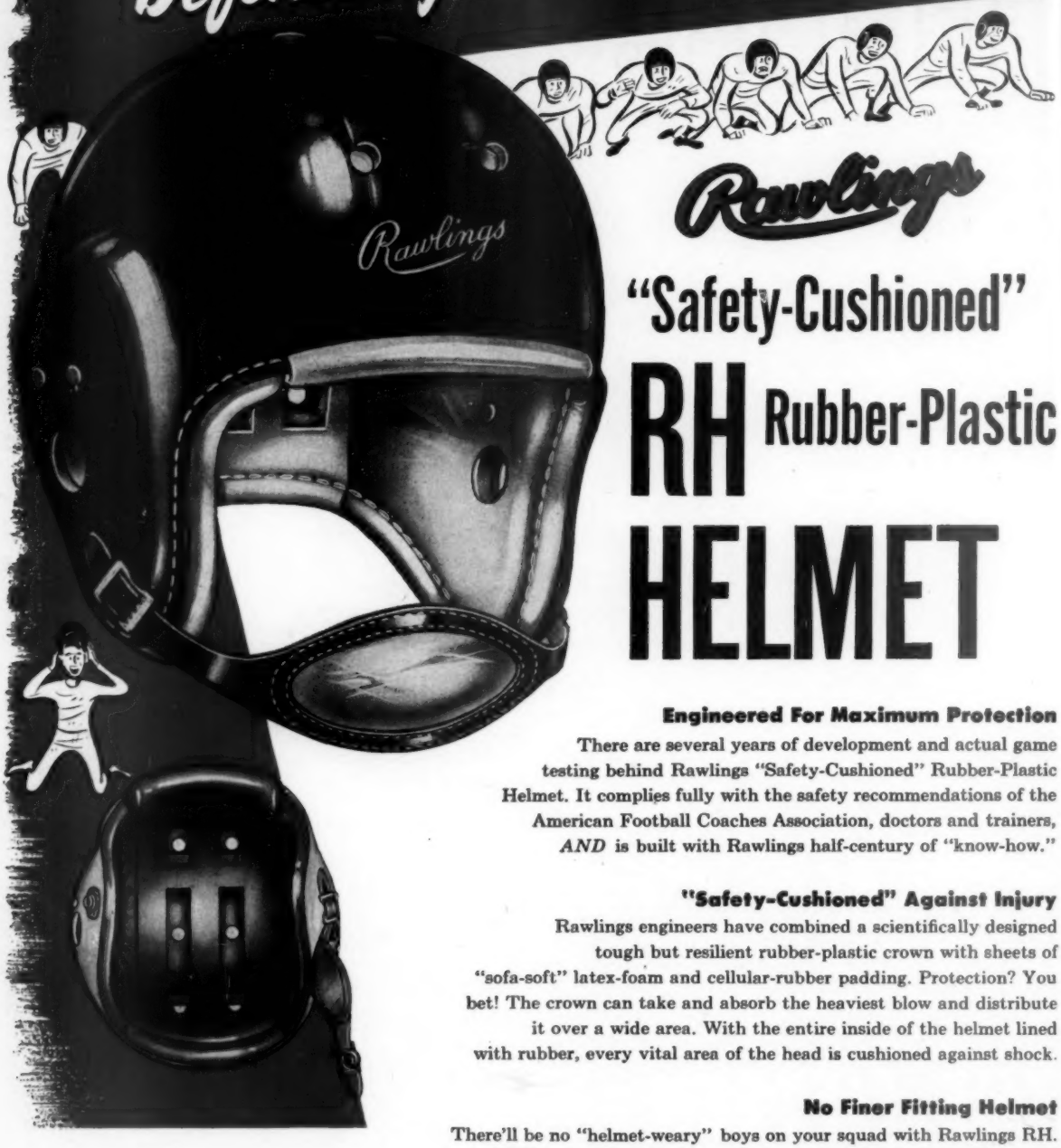

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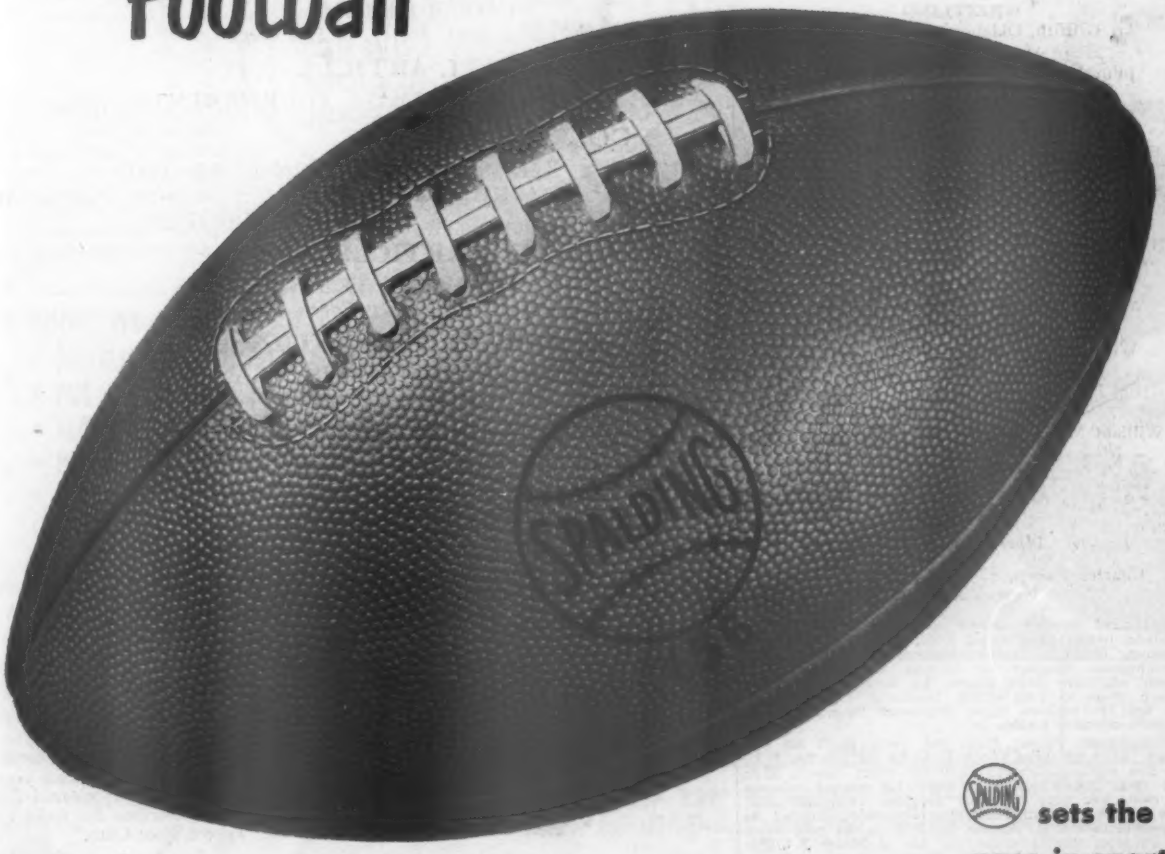

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The ATHLETIC JOURNAL

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FRONT COVER ILLUSTRATION

Just a few short years ago the fifteen foot vault was a hypothetical figure, similar to the four minute mile. Then Cornelius Warmerdam proceeded to clear the height 43 times. Last year Bob Richards, Don Laz (picture) and Don Cooper cleared the height. On pages 6 and 7 Warmerdam describes the form of these three newest members of the "Fifteen Foot Club."

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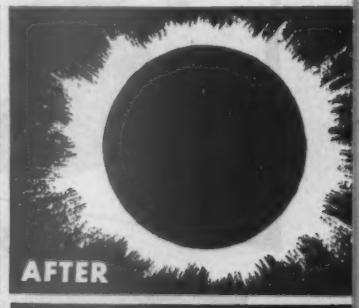

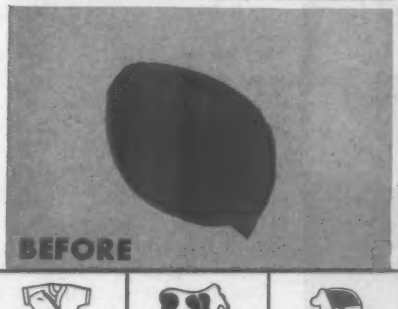

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from here and there

PAT PATTERSON, rounding out 24 years of coaching, was appointed director of this summer's Idaho Coaches Association Coaching School. The first instructor he signed was "Tippy" Dye, University of Washington coach. Their association goes back a number of years, to the time when both were instructors at "Ole" Olsen's Boys' Camp. "Ole" then was coaching at Ohio State and is now at Northwestern . . . Coaches have always known that teams were up and down for certain games, but it was often difficult to tell whether such was the case before the teams were actually in the game itself. Now, thanks to some rather extensive research by Dr. John Harmon, director of athletics of Boston University, a coach may know day-by-day the condition of his players. By use of a galvinometer, small enough to be held in the hand, the skin resistance of the players can be tested. Research has shown that an athlete with high skin resistance will probably play below par, while the player with a low resistance will be more likely to turn in an outstanding performance . . . In the 42 years that the Big Ten has held its indoor track meet, only 13 times has it been won by other than Michigan or Illinois.

• • •

IT isn't often that a high school coach beats out a college coach for a "Coach of the Year" award, but such has twice been the lot of Chink Coleman. In 1951 Coleman, coach of St. Mary's High School of Phoenix, was selected as "Arizona Coach of the Year" and a number of years earlier while at Hatch, New Mexico, High School, was chosen "New Mexico Coach of the Year." . . . Remember reading "The Kinert Press" in the December issue? Well, it paid off again for Harry Kinert, according to the *Chicago Daily News* which stated, "Coach Harry Kinert's defending champs broke loose with a tremendous rally to down West Rockford 59-55. The Pretzels trailed by 11 points with five minutes left, but went into a full-court press, which completely baffled the Warriors." . . . J. M. "Suey" Eason stepped out of scholastic circles when he left Hampton, Virginia, to succeed Marvin Bass as football coach at William and Mary . . . In the reverse, Winlon Knowles, assistant football coach at Tulane, resigned to become athletic director and head football coach at Kilgore, Texas, High School . . . Girls' basketball flourishes more in Iowa than in probably any other state, this being the 27th year of the girls' tournament. The average enrollment for the 16 teams which competed in the finals was 136. The coaches have been at their present locations for four years, on the average, having graduated as an average in 1943 from relatively small colleges, the average enrollment of which is under 1900. A number of the coaches handle boys' basketball as well. Earl O. Berge's Seymour team has won 199 and lost but 18 games. His boys' teams have won over 80 per cent of their games to boot.

• • •

ASIDE from being one of the most respected track coaches in the business, Karl Schlademan holds the distinction of having founded two of the nation's outstanding track relays, the Kansas Relays and the Michigan State Relays. Schlademan was track coach at Kansas from 1916 to 1923. He followed this with 14 years at Washington State and then went to Michigan State where he founded the Michigan State Relays . . . Frank Hill, another very respected track coach, will retire in June after having served at Northwestern since right after the first World War. His departure from coaching ranks removes the last of the threesome of Knute Rockne, Frank Hill, and Henry Schulte who spent most of their springs plotting against one another. Following a mile relay at the Drake Relays in which Notre Dame was leading, only to drop the baton at the last exchange, the three were riding into Chicago. As the train stopped at Davenport, a wire was delivered to Rockne which said in effect, "We don't have football, but can offer you the post of track coach — signed President of Vassar." This story and hundreds similar to it are always re-

(Continued on page 52)

Oregon State College at Corvallis, Oregon, faced a real problem when it was decided to install main court basketball backstops in Gill Coliseum. The roof trusses are 65 feet above the floor at the locations of the backstops. Porter engineers designed special "elevator type" backstops that hoist to the ceiling, but are trim in appearance and rigid in use. They are equipped with Porter 211B Plate Glass Backboards.

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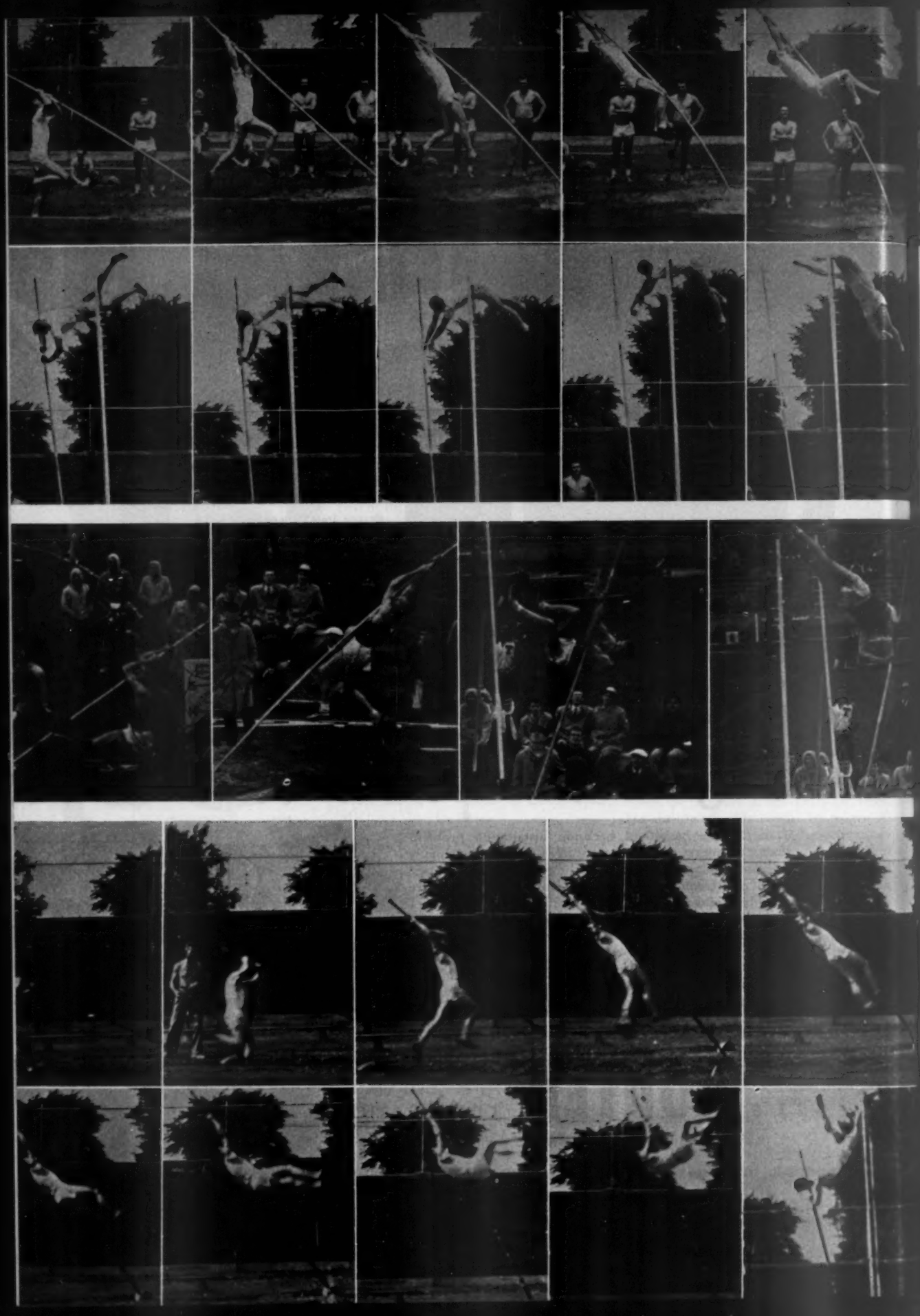
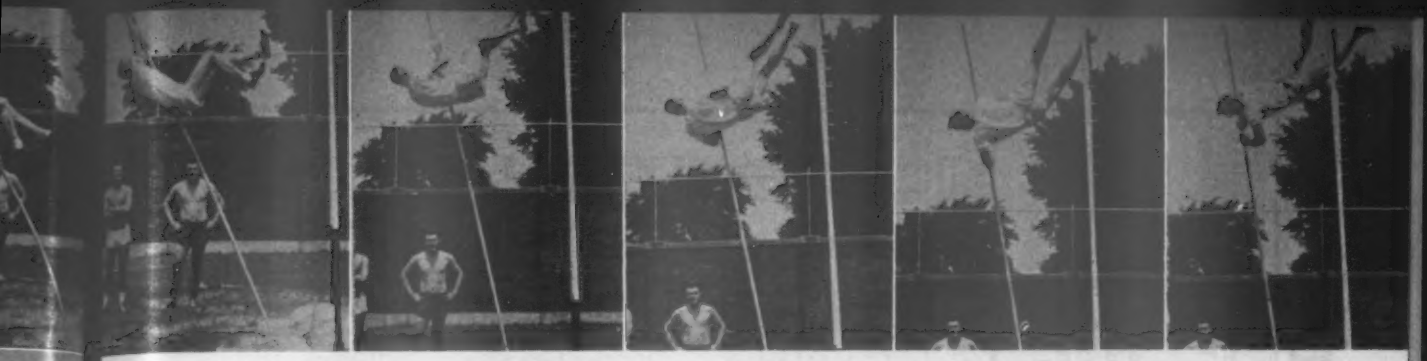




The Fifteen Foot Vault

By CORNELIUS WARMERDAM
Assistant Track Coach, Fresno State College

IN this analysis many of the features of Laz's vault are also true of the other two vaulters, but since his is the first vault in the series it will be covered in more detail. To avoid needless repetition these details are not repeated for Cooper and Richards, and only the features that are different are pointed out. *All sequences are numbered from left to right.*

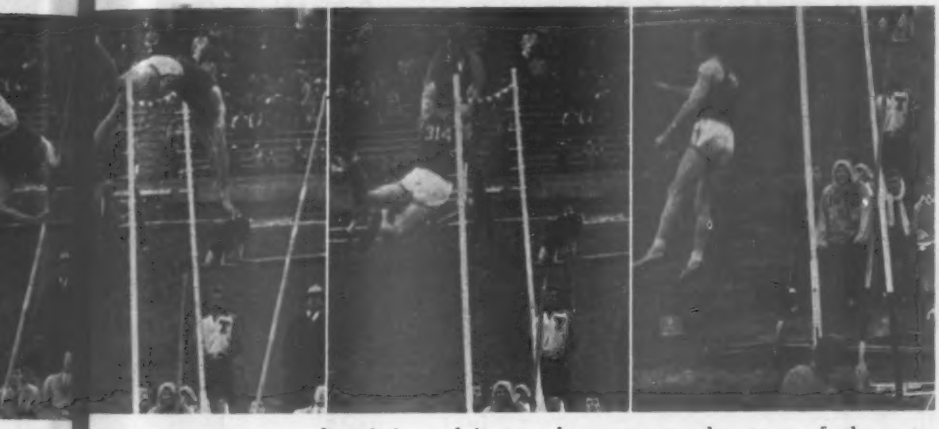


Illustration 1 shows Laz in fine take-off form with his hands fairly close, elbows flexed to take care of the shock of the pole hitting the box. His left foot is planted directly under his hands, at right angles to the ground, or more probably slightly behind this point.

Illustrations 2-6 show a long swing prior to the pull-up. This phase of the vault is probably the strongest feature of Laz's vaulting. His arms have extended from a flexed position to an extended position, and in these five illustrations are doing nothing but hanging on to the pole and allowing his body to swing forward freely to take full advantage of the velocity developed on the approach. The third picture is an example of a delayed period where Laz's hands and legs are behind the rest of his body with his back slightly arched to get the greatest advantage of the catapult action which may be obtained by a long swing. *Illustrations* 4, 5 *and* 6 show that his knees have started to lift, but there is still no pull-up by the arms. In *Illustration* 6 Laz's knees are about shoulder high where they should be before a pull-up is started. Many inexperienced vaulters start their pull-up before this point is reached and thus kill part of their swing.

Illustration 7 shows the beginning of two phases of the vault — the pull-up and turn. These two actions are almost simultaneous. Laz's knees in this illustration have come back toward the pole to provide for more efficient lifting since it becomes more difficult to lift the body as it moves away from the pole.

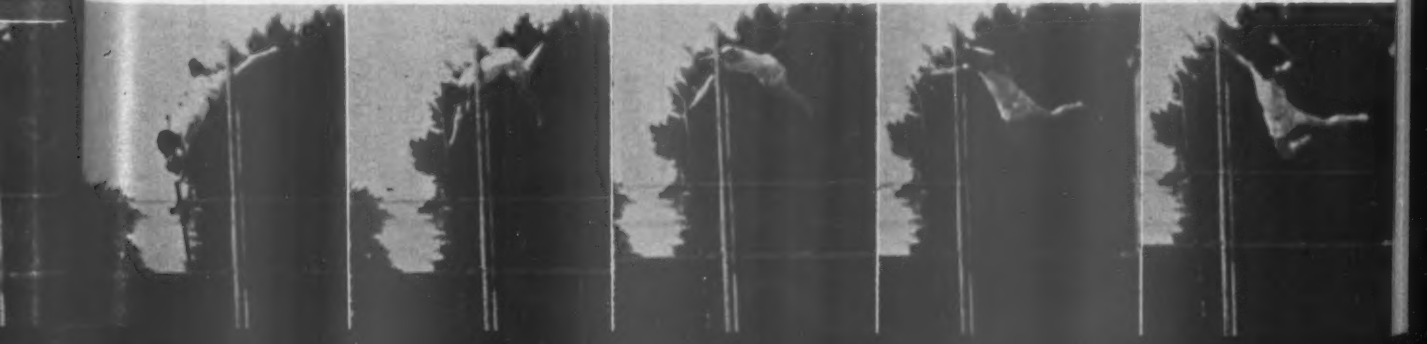
In *Illustration* 8 the pull-up has been completed with the body still moving upward and still turning.

THIS article is unique in that it presents an analysis of the form of the three current fifteen foot vaulters by the incomparable Cornelius Warmerdam, who was the first vaulter to clear the magic height, and subsequently cleared it 42 additional times. Pictured at The bottom is Bob Richards, the second man in history to clear fifteen feet. To the left is Don Cooper, who became the first collegian to surpass the figure, only to have his record broken two hours later by Don Laz, who is shown in the top sequence.

Illustrations 9 *and* 10 show the completion of the turn with the body now in position to be pushed upward by the arms.

Illustrations 11-15. Several factors show up in the last five illustrations of this series. It would appear that the standards are at least two feet beyond the take-off box, which is very unusual at advanced heights. most vaulters adjust the standards away from the box at lower heights, but pull them back toward the run-

(Continued on page 24)



1952 STATE BASKETBALL TOURNAMENTS

At this time, and with several scores not in, the average score for the winner and runner-up was a fraction lower than a year ago. In 1950 the average winning score was 47.7; in 1951, 53.6; and this year 53.3. The loser in 1950 averaged 37.5 points; last year 43.6 points; and this year 42.6 points. Paul Moon of Davenport, Iowa becomes the winningest coach, having taken the championship for the third time in a row. In addition to Moon, the following repeated last year's win: Bill Weimar and Bill Gamble of Colorado; Francis Clark, Idaho; Napoleon Ross, Michigan; Arnold Ryan, Missouri; John Cheek, Montana; Ed Petro, New Hampshire; John Gutowski, New Jersey; Julius Conn, Virginia; and J. R. Van Meter of West Virginia.

The following schools repeated as champions, but under the new coaches indicated: Valley Springs, Arkansas, Morris Jones; Central of Muncie, Indiana, Jay McCreary; Beals, Maine, Thomas Longfellow; White Pines at Ely, Nevada, George Loveless.

These coaches moved their teams from runner-up to champion: Raphael Sneed, Florida; John Ravenscroft, Kansas; Wes Hussey, Maine; James Wink, Michigan; Carroll King, North Carolina; Jerry Smith, Tennessee; and Joe Guillory and Ford King, Texas. Garden moved up in the Virginia tournament under a new coach, Paul Tarasuk, and Carlin, Nevada did likewise under Louis Mendive.

	WINNER	COACH	RUNNER-UP	COACH	SCORE
ALABAMA	AA—Winfield	Estes Hudson	Coffee (Florence)	Hayden Riley	62—45
	A—Miller (Brewton)	Hal Wyatt	Priceville	Robert Ryan	55—42
ARIZONA	A—West (Phoenix)	Link Richmond	Mesa	Kenneth Heywood	48—38
	B—Carver (Phoenix)	Leon Jordan	Ajo	Dan Yurkovich	85—49
ARKANSAS	A—Pine Bluff	Jerry McFarland	Fayetteville	Glen Stokenberry	43—27
	B—Valley Springs	Morris Jones	Hartford	Harold Plunkett	59—34
COLORADO	AA—East Denver	William Weimar	Manual —(Denver)	Roy Byers	48—35
	A—Brighton	William Gamble	Del Norte	Jesse Rogers	44—36
	B—Edgewater	William Nicholas	Burlington	Joe Folsom	47—30
	C—Climax	Ever Cosseboom	Wellington	Robert Eyestone	58—47
CONNECTICUT	L—Hillhouse (New Haven)	Sam Beader	Warren Harding (Bridgeport)	Steve Miska	54—53
	M—Shelton	Vin Murray	Wethersfield	Robert Burford	67—47
	S—Simsbury	Russell Sholes	East Hampton	E. J. Bear	56—38
FLORIDA	AA—Pensacola	Raphael Sneed	Hillsborough (Tampa)	Phil Craig	80—44
	A—Bolles (Jacksonville)	Mark Bradley	Mulberry	Arnold Holmes	58—30
	B—Malone	James S. Pavy	Our Lady of Perpetual Help (Tampa)	Gene Bittner	71—38
	C—Wewahitchka	William H. Linton	Hilliard	Gene Weatherford	36—35
GEORGIA	AA—Brown (Atlanta)	Roy Rowlett	Lanier (Macon)	Selby Buck	54—44
	A—La Grange	A. Mariotti	Colquitt	J. E. Calhoun	51—48
	B—Fort Valley	Norman Faircloth	Sandersville	E. A. Bivings	62—45
	C—Stilson	S. A. Driggers	Montezuma	Bill Martin	53—52
IDAHO	A—Idaho Falls	Francis Clark	Preston	Evan Sorenson	40—37
	B—Kimberly	George Kell	Aberdeen	Chris Leston	53—51
ILLINOIS	Hebron	Russ Ahearn	Quincy	George Latham	64—59
INDIANA	Central (Muncie)	Jay McCreary	Technical (Indianapolis)	Herman T. Hinshaw	68—49
IOWA	Davenport	Paul Moon	Keokuk	Donald Shupe	48—45
KANSAS	AA—Newton	John Ravenscroft	Shawnee Mission	Bob Johnson	54—53
	A—Russell	Amos Morris	Augusta	John Hutter	62—47
	BB—Brookville	George R. Holmes	Haviland	Nolan D. Hester	53—51
	B—Halstead	Clinton Hill	Natoma	Johnny Locke	49—29
KENTUCKY	Cuba	J. B. Story	du Pont Manual (Louisville)	Jack Burmaster	58—52
LOUISIANA	AA—St. Aloysius (New Orleans)	Ed Tonibio	Bolton (Alexandria)	Leo Marler	52—50
	A—Plaquemine	Robert A. Halstead	Jonesboro	Harold Haile	36—32
	B—Quitman	R. E. Crowe	Coushatta	Wallace Prather	51—41
	C—Doyle	J. C. Hutchison	Oak Grove (Converse)	B. H. Arthur	48—47
MAINE	L—Old Town	John Barker	Lewiston	John Dickson	56—50
	M—Milo	Wes Hussey	Falmouth	Ashton Atherton	63—29
	S—Beals	Thomas Longfellow	Rangeley	Neal Russell	68—56
MASSACHUSETTS	A—Durfee (Fall River)	L. J. Urban	Somerville	J. L. Sullivan	53—46
	B—Winchester	E. A. Bartlett	South Boston	J. F. Callahan	57—48
	C—Provincetown	D. Murphy	Scituate	E. L. Stewart	54—39
MICHIGAN	A—Highland Park (Detroit)	James Wink	Arthur Hill (Saginaw)	Charles Fowler	43—42
	B—St. Andrews (Detroit)	Napoleon Ross	Grand Blanc	Stanly Bussard	41—38
	C—St. Louis	Sherman Olmsted	Algonac	Jack Greenstein	53—34
	D—Fowler	Marion Piggott	Copemish	W. W. Fish	55—30
MINNESOTA	Hopkins	R. S. Maetzold	South St. Paul	Kenneth Fladager	42—29
			Clinton	James Allen	41—31

MICHIGAN	C—St. Louis D—Fowler	Sherman Olmsted Marion Piggott	Algonac Copemish	Jack Greenstein W. W. Fish	53—34 35—20
MINNESOTA	Hopkins	R. S. Maetzold	South St. Paul	Kenneth Fladager	42—29
MISSISSIPPI	A & AA—Kossuth B & BB—Bogue Chitto	Windie Davis R. L. Calhoun	Clinton Soso	James Allen Liddell Howard	41—31 49—48
MISSOURI	A—St. Louis Univ. High School B—Puxico	Henry Raymonds Arnold Ryan	St. Louis DeAndreis Shelbyville	George Hasser C. J. Kessler	50—40 85—37
MONTANA	A—Flathead Co. H.S. (Kalispell) B—Wolf Point C—Belfry	Johnny Cheek Robert Lowry Bob Rae	Helena Shelby Centerville	Lloyd Skor Jeff La Buff Bill Zupan	45—43 67—57 68—53
NEBRASKA	A—Scottsbluff B—Minden C—Chadron Prep. D—Uehling	Warren R. Brown Auss Boque Archie H. Conn Les Shepard	Fremont Omaha Holy Name Gibbon Palmyra	Robert Faris Emil Engelbretson Glen E. Shafer Bernard R. Davis	50—39 49—35 35—24 53—42
NEVADA	A—White Pine (Ely) B—Fernley	George Loveless Kenneth Williams	Las Vegas Carlin	Pat Diskin Louis Mendive	61—60 68—53
NEW HAMPSHIRE	A—Portsmouth B—Gorham C—Whitefield	Ed Petro George Reid Dick Healy	Keene St. Mary Walpole	Gil Wyman Omar Rousseau Bob Desmaris	34—26 47—44 60—59
NEW JERSEY	Grp. 1—Sayreville Grp. 2—Rossele Park Grp. 3—Hackensack Grp. 4—Jefferson (Elizabeth)	John Gutkowski James P. Woods Howard Bollerman William Tranavitch	Dunellen Burlington Princeton Emerson (Union City)	Michael Shello Robert Dotti J. Drulis Thomas Eckert	70—54 68—62 74—59 72—59
NEW MEXICO	Roswell	Van Witt	Alamogordo	Sam Stratton	36—33
NORTH CAROLINA	AAA—Raleigh AA—Hendersonville A—Welcome	Carroll King J. Ted Carter Francis Essic	Greensboro Washington Pleasant Garden	Bob Jamieson & Julian Smith W. J. Sweel Colon Wright	51—49 50—40 64—60
NORTH DAKOTA	A—Grand Forks B—Model (Minot) C—Butte	Fritz Engel Frank Good Clair Blikre	Williston Rugby Bowdon	Cliff Hendrickson Melvin Johnson Neil Arntzen	43—38 62—52 39—36
OHIO	A—Middletown B—Wayne (Lockland)	Paul Walker Joe Martin	Steubenville Nelsonville	Ang Vaccaro Lowell Cole	63—53 54—48
OKLAHOMA	A—Enid B—Mangum C—Meadowbrook (Marietta)	Paul Guyman Ray Hogan Grady Brewster	Ardmore Leedey McLish (Fittstown)	C. E. Jacobson Floyd Russell Ancel Sales	64—53 40—39 39—35
OREGON	A—Lincoln B—Rogue River	James Partlow Myndret Busack	Central Catholic Knappa	Robert Molder Howard Kauffman	66—44 61—50
RHODE ISLAND	Rogers (Newport)	Leo Crowe	East (Pawtucket)	Arthur Nooney	48—44
SOUTH CAROLINA	A—Walhalla B—Mullins C—Bowman	J. B. Copeland Fred McCall A. R. Cole	Hartsville Piedmont Chapin	J. W. Harrison J. H. Nesbitt J. B. Addy	53—51 51—47 62—24
SOUTH DAKOTA	A—Brookings B—Ipswich	Harold White Leroy Engebritson	Huron Hayti	V. D. Clodfelter James Marking	50—49 37—32
TENNESSEE	Selmer	Jerry Smith	Jackson	Tury Oman	63—47
TEXAS	Div. 1—Alamo Heights (San Antonio) Div. 2—Dimmitt Conf. B—Big Sandy (Dallardsville)	Joe Guillory J. W. Blaine Ford King	Polytechnic (Fort Worth) Bowie Laneville	Jack Harley R. E. Mattingly Van P. Samford	54—46 59—54 62—41
UTAH	A—South High B—Springville	Willard Knibbe Paul Wilson	Jordan Brigham Young High	Art Hughes Don Snow	54—43 60—39
VERMONT	A—Rutland B—West Rutland C—Stowe	Leo Keefe Frank Hinchey John Spasyk	Spaulding (Barre) Northfield Danville	Richard Wescott James B. Mahoney Houghton D. Pearl	42—36 47—41 56—30
VIRGINIA	Grp. 1—Newport News Grp. 2—Harrisonburg Grp. 3—Garden (Oakwood)	Julius Conn Claude Warren Paul Tarasuk	Washington Lee (Arlington) St. Paul West Point	John Rossrock Edwin Hill Ray Haines	55—37 36—35 43—37
WASHINGTON	A—Walla Walla B—Monroe	Richard Wooten John Stahl	Ellensburg Eatonville	Russ Wiseman Ernest Cope	48—43 51—31
WEST VIRGINIA	A—Woodrow Wilson (Beckley) B—Wells (Newell)	J. R. Van Meter John Robinson	West (Fairmont) Gassaway	Paul Dawson A. C. Smyth	53—32 56—39
WISCONSIN	South Milwaukee	Larr Jansky	Stevens Point	John Erickson	61—54
WYOMING	AA—Cheyenne A—Thermopolis B—Cowley C—Ten Sleep	C. H. Blanchard George Collins Joe Cronmer John Schalles	Casper Lovell Lyman Dayton	Earl Ray Chester Christiansen Vern Jensen Dick Cruber	63—45 47—42 59—37 36—28

Tournaments are not held in California, Delaware, New York, and Maryland. The Pennsylvania tournament was not played until March 29, after this publication had gone to press.

The Short Game In Golf

The Chip Shot

Demonstrated by SAM SNEAD

Captions by HERB GRAFFIS, Editor, Golfing and Golfdom Magazines

(Third in a Series)

THIS shot with an 8- or 9-iron from a fairly heavy lie bordering a green is one that calls for delicacy. If the lie were better even the most expert golfer probably would take a putter and be reasonably sure of coming as close to the cup as he would get with a lofted club.

You'll note that Snead's left arm is almost stiff, it's so straight at every stage of this shot. That minimizes the risk of altering the radius of the arc the clubhead travels.

There is to be bite and very little roll when the ball hits. Snead plays

the shot from a slightly open stance with the feet close together. The ball is played off the right toe.

See how Snead's right forearm is virtually resting against his right leg, almost in the position many good players favor for putting. And observe how this right arm position changes very, very slightly until after the ball is hit and his hands go out after the club.

What is particularly interesting about the way Snead is playing this shot is the easy body action. You are bound to note that as you study the change in position of his knees with respect to the location of his hands in this series. Often you may read there is practically no body action in these chip shots but when you look at the action pictures of the stars chipping you'll note a cat-like grace in moving around on the shot.

Letting the body perform easily and naturally relieves tension that might destroy the precision of the shot and even on this sort of a shot where practically no force other than the moving clubhead is required the hands may have a tendency to chop at the ball unless the player's weight is shifting, slightly but with velvet smoothness.

Taking a grip low on the leather and standing so the left eye is almost over the ball are two essential precautions to take in protecting the precision of the stroke.

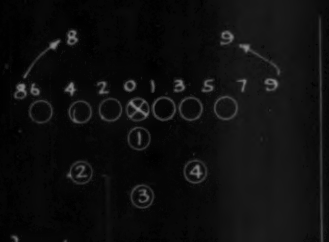
Again, with reference to the gentle aid of the weight shift, note how Snead preserves the axis of the little swing, perfectly. That light spot on the crown of his hat remains in the same position until well after the ball is on its way. You will note the smoothness of the shoulder action as you notice the change in position of the bottom of the left sleeve of Snead's shirt.

The clubhead comes back from the ball low and on a line with the direction of intended flight until body action, rather than any wrist hinging, lifts it slightly. Then there is a bit of the wrist work and no visual evidence of arm action.

With the left arm as the guide and the right hand giving a bit of a slap the club slides into the grass under the ball and stays low going through on the line of the ball's flight.

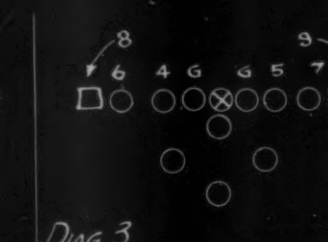
Pay special attention to the position of the right hand in the lower line of photographs. See how the back of the right hand is at a right angle to the line to the target. There is no opening of the clubface as a tricky job of trying to give the club greater lofting effect. The club is allowed to do the job for which it is intended.

The grip is secure but not tight. A firm grip for a shot like this gives a bit more run to the ball; an easy but adequately secure grip softens the chip so it drops dead.



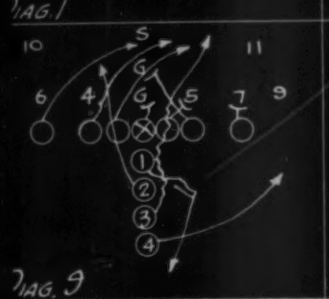
DIAG. 1

DIAG. 2



DIAG. 3

DIAG. 4



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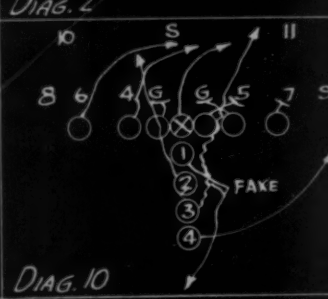

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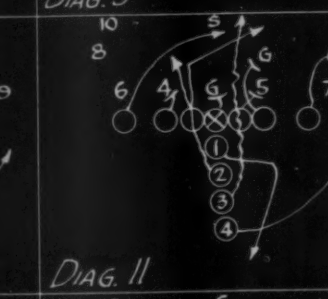

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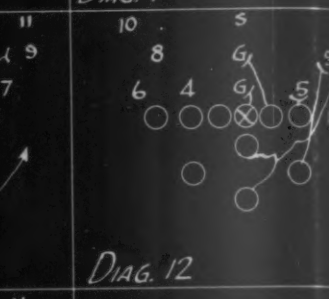

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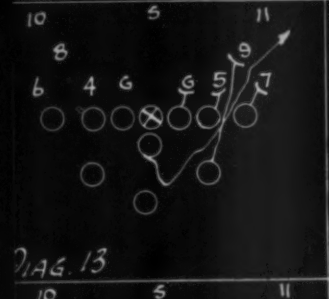

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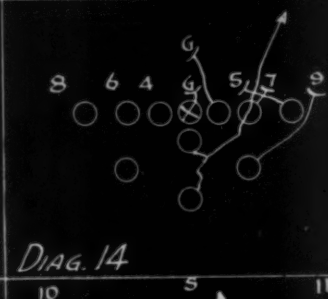

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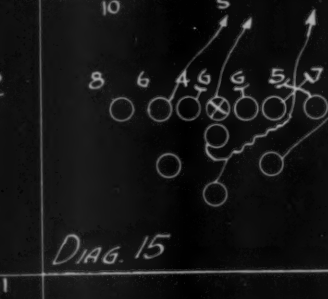

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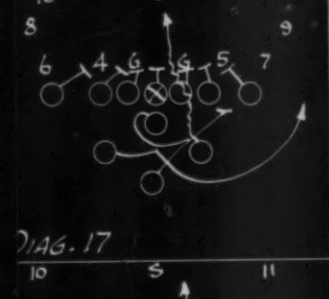

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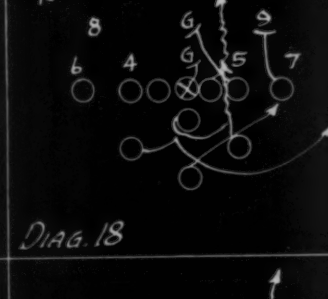

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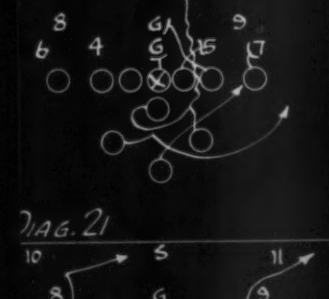

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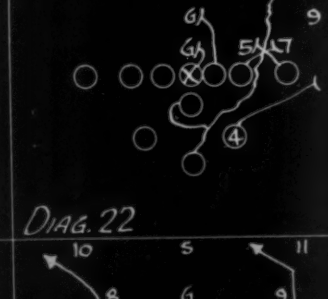

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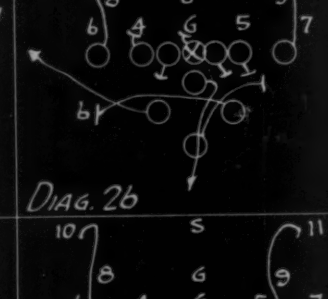
DIAG. 23

DIAG. 24

DIAG. 25



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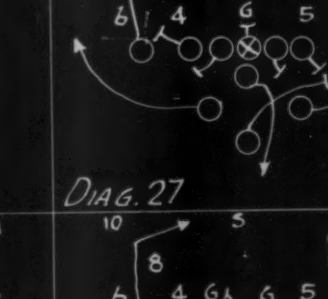

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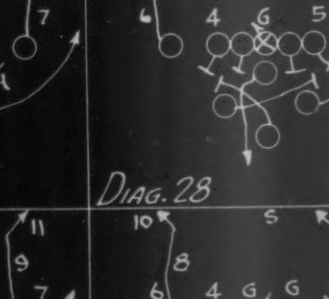

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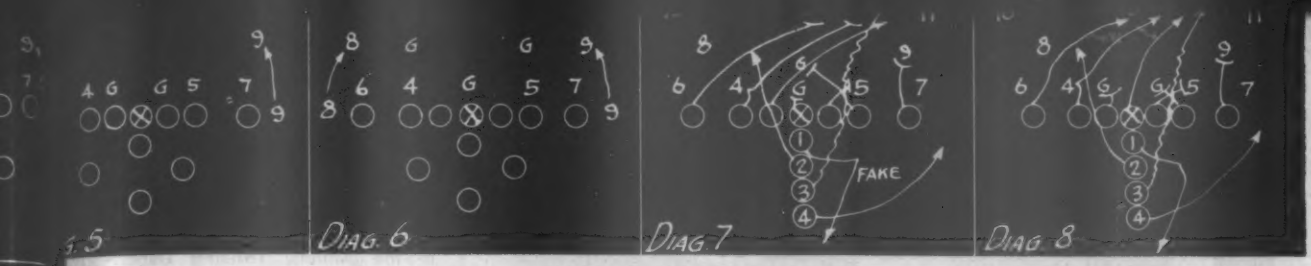


Diag. 6 Diag. 7 Diag. 8

Use of the Zone System to Combat Changing Defenses

By LOUIS F. ZARZA
Football Coach, Wayne University

IN April 1948 we prepared an article on the "Zone System of Blocking" which appeared in the *Athletic Journal*. Since that time we have used this system through four seasons, making numerous improvements, and some changes. The following article is a sequel to our previous writings on the subject.

We number the offensive holes as is shown in Diagram 1. For an end run we may have any back, 1, 2, 3 or 4, hit over the lanes designated by the quarterback. Specifically, the quarterback may call a 29, 39, 49 or 19 play, which indicates the play is going over the 9 zone. Running to the left, any of our backs may run to the 8 zone.

Against a five-man line, our zone arrangement is as shown in Diagram 2. We call the G zone anyone who is on our center's head, up to five yards back. This also applies to anyone on our guards.

The 4 and 5 zones are over our tackles, extending five yards deep, and laterally from the guards to the ends. The 8 and 9 zones are more flexible, starting back of our ends for a depth of two to five yards, and extending laterally two yards past our offensive ends. The 6 and 7 zones are readily observed as soon as a defensive man positions himself over or near our offensive ends.

Diagram 3 shows our zone arrangement against a six-man line. The G zone is now over our guards and does not change the blocking assignments for our guards or center. The 4 and 5 zones are practically the same as they are against the five-man setup. We have no difficulty with the 8 and 9 zones because our squad has learned that these zones are deep, back of the end, or two yards laterally past the ends. The 6 and 7 zones are practically the same as against the five-man line.

The seven-man line zones are shown in Diagram 4. In this arrangement we find the G zone, the 4 and 5 zones, and the 6 and 7 zones are the same as against a five-man line. The 8 and 9 zones are the same as against the eight-man line. We feel that the 8 and 9 men in the five-man line have now come up on the defensive line.

LOU ZARZA graduated from Michigan State in 1936, and since that time has chalked up a remarkable coaching record, serving first as head football coach at St. Viator College, then as assistant under Mike Casteel at Arizona. During navy service he coached Georgia Pre-Flight and Norman Navy Base. Following the war, he served as end coach under Charlie Bachman at Michigan State, then as line coach under Casanova at Santa Clara, and finally as assistant to Bo McMillin with the Detroit Lions. He took over at Wayne in 1949 where last fall he was credited with being one of the very first to use the true T formation or I formation as it is called.

In the eight-man line zones, shown in Diagram 5, we feel that the G zone, 4 and 5 zones, and 6 and 7 zones are the same as against a six. As mentioned above, in the seven-man line we feel that the 8 and 9 men have left the secondary and come up on the defensive line.

The zones for a 5-4 defense are shown in Diagram 6. In this special defense we still adhere to our principles and say that the men in the G zone will be treated as such; consequently, we now have three guards. The 4 and 5 zones are the same as those used against a five-man line. We treat the 8 and 9 zones as if we were running against a six-man line. There is no difficulty with the 6 and 7 zones because they are treated the same as they are in other defenses.

Now, let us see some plays run against the various defenses. Diagram 7 shows an inside tackle play run from the true T formation against the five-man line. We employ a fan block on the No. 5 man, our tackle opens the gate and goes through for the man in the G zone. Our center always takes the man on his head. Our end takes No. 9 unless 9 drops on the line, in which case he blocks No. 7.

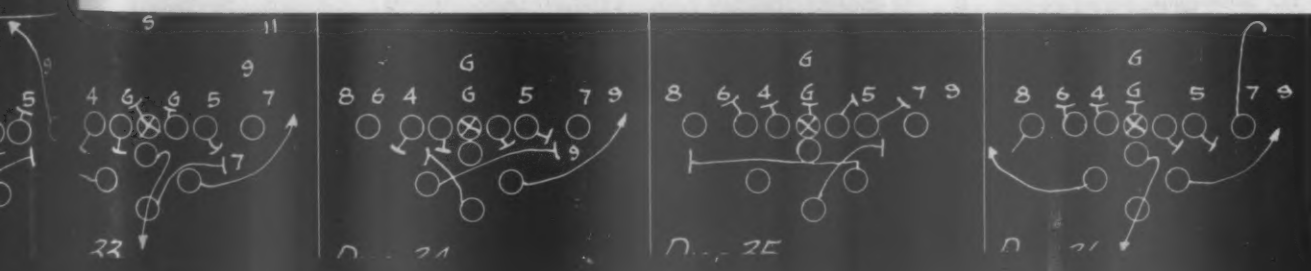
The same 33 play run against a six-man line is shown in Diagram 8. Our right tackle takes the man in the G zone, the right guard blocks in the 5 zone. The center, not having anyone on his head, goes through.

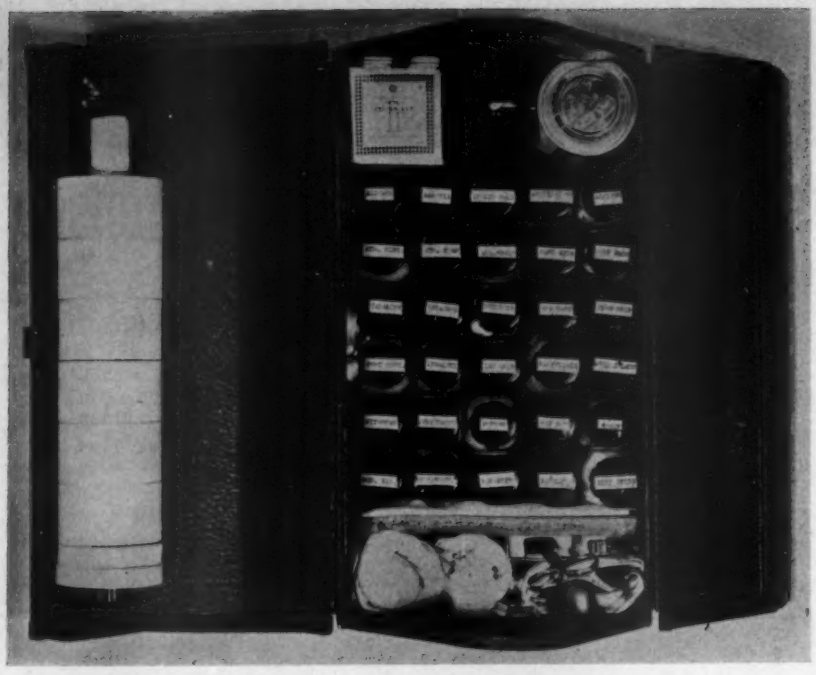
Against a seven-man line zone, Diagram 9, we treat it the same as against a five-man line. The center, right guard, and right tackle will have the same blocks in the same zones as against the five-man zone. The end, finding the deep 9 zone open, blocks in the 7 zone.

Against an eight-man line, Diagram 10, the blocking is identical with that used against the six-man zone, with the exception that the right end on finding the deep 9 zone vacant, blocks on the 7 zone, similar to his play against the seven-man line zone.

Running the same play against the 5-4 defense, Diagram 11, we find the right tackle opening the door and going for the man in the G zone. The right guard still takes the 5 zone, and the center takes the man on his head, and the right end takes care of the 9 zone.

(Continued on page 59)





Hints About Training Kits

By ROBERT C. WHITE

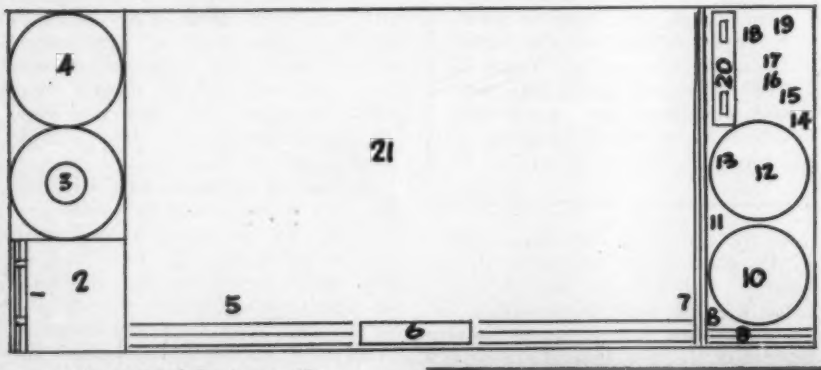
Head Trainer, Wayne University

TRAINERS' kits may be systematized. In spite of the vast array of materials and equipment that are "musts" the kit can be conveniently arranged. With simple inexpensive modifications, the standard type of varsity trainer's kit may be made more complete and efficient. By making a few alterations the usability of the kit may be tremendously increased.

Scissors, scalpels, tweezers, etc., may be made more accessible and the life of the instruments prolonged by placing the points down through slots cut in small thin boxes. The insides of the boxes should be padded with cotton as this helps to protect the points of the instruments (Bottom Illustration). The rub-oil bottle may be converted into a hand dispenser by the substitution of an ethyl chloride bottle cap (Bottom Illustration). This cap eliminates the mental anguish associated with lost bottle caps and oily bottles.

A good practical means for making the kit more complete is to use bottles of uniform size and shape. Thirty two-ounce, wide mouth, French square bottles fit compactly into the center area of the kit (Top Illustration). Both bottles and caps should be labeled to insure safe use. For convenience and permanence, it is best to use typewritten labels which should be fastened to the bottles and caps with cellophane tape (Bottom Illustration). For personal convenience, the labels should be placed in identical positions on all the bottles and caps.

It will be necessary to change the contents of the kit according to the sport season, but the uniformity may be maintained throughout the year.



Layout of Trainer's Kit

1. Tongue depressors.
2. Cotton. 3. Rub oil.
4. Powder. 5. Sterile pads.
6. Shoestrings.
7. Chiropodist's felt.
8. Sponge rubber.
9. Dispensing envelope.
10. Cups. 11. Comb.
12. Two-inch elastic wrap.
13. Safety pins.
14. Safety razor.
15. Pencil. 16. Thermometer.
17. Tape cutter.
18. Triangular bandage.
19. Eye dropper.
20. Scissors, scalpel, and tweezers.
21. Bottle area.

ROBERT WHITE graduated from Michigan State Normal and while doing graduate work at Michigan worked under Jim Hunt in the Athletic Training Department. Following his work at Michigan, he returned to his alma mater as head trainer for a year, before assuming that position at Wayne this past September.

Advanced Triples Balancing

By JAMES A. BALEY
Ohio Wesleyan University, Delaware, Ohio

THE *February issue* carried an article entitled, "Beginning Triples Balancing," which described balancing stunts performed by three people. These stunts could be presented to service classes in physical education. This article was followed in the *March issue* by "Intermediate Triples Balancing," written to assist those boys whose interest was stimulated, and whose aptitude for this relatively unknown activity had been proven. Now we will present five stunts of a professional caliber which require considerable practice and teamwork, but the effort expended will be rewarded in the satisfaction of accomplishment.

JAMES BALEY graduated from Illinois where he was a member of their Gymkana Troupe. Following graduation, he organized the gymnastic team and Gymkana Unit at Duke. Since completing work for his doctor's degree in 1949 he has been at Ohio Wesleyan.

Sequence A above
Sequence B below

Sequence A shows the conventional procedure for mounting into the "three high." First, the three partners go into the "three high sitting position" on each other's shoulders. This position is shown in Illustration 2. The procedure for getting into this position was described as part of the "triple thigh stand" in the article "Beginning Triples Balancing" which may be found in the *February issue* Once in this position, the middle and

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bottom men should grasp hands While the bottom man holds his upper arms parallel to the ground and oblique to his body, with his forearms perpendicular to the ground, the middle man should push himself upward against the bottom man's hands and place one foot on the bottom man's shoulder as is shown in Illustration 3. In order to accomplish this, considerable flexibility is required because it is necessary that the middle man draw his thigh up against his own chest. Once this is accomplished, the middle man should place his other foot on the bottom man's opposite shoulder keeping his back perpendicular throughout. Then the middle man should extend his legs somewhat and release his grip, while the bottom man grasps him behind the calves just above the center of the gastrocnemius muscle and as deep as possible. The middle man then comes to the fully erect position. As he does this the bottom man should pull hard down and forward on his legs and press his head backward. Then this entire procedure is repeated by the middle and top men to complete the stunt as is shown in Illustration

Sequence D

4. In the illustration, the feet of the middle and top men are too far forward. When the stunt is completed properly only the toes of the top man

Illustration C

should be on the shoulders of the middle man, and the toes of the middle man on the shoulders of the bottom man with the heels free of the shoulders, down, and together. In this stunt the top mounter should resist any temptation to balance himself. He must place complete confidence in the bottom and middle men. In dismounting from this position the entire procedure is reversed.

The next stunt is called the "spring-up into the three high," (Sequence B). It is started with the bottom and middle men in the "two high" position; the top mounter is facing them, and is holding the hands of the middle man in a crossed grip. The bottom man should place one hand at his side to provide a step for the top mounter, and retain his grasp on the calf of the middle man's leg with his other hand. This starting position is shown in Illustration 1. Then the top mounter springs upward from the mat using the step which has been provided. Meanwhile, the middle man pulls upward to bring the top mounter to a standing position on the bottom man's shoulders facing the middle man. During this procedure the middle man should exercise care to keep his back as nearly per-

(Continued on page 56)

Sequence E

Gearing Up

By WAYNE RIDEOUT
Ordnance Work, Grand Island, Nebraska

IN the field of sports we are keeping pace with mechanical developments which seemed fantastic in former years. These developments are regarded not as luxuries today, but as necessities. Just as engineers have been striving constantly to produce greater speed in cars, so have the men who coach the track and field athletes been trying to find a method which will produce greater speed with less wear and tear on the human body.

The human body in many respects is parallel to the mechanics of a motor car, but unfortunately, worn out parts cannot be replaced. Therefore, the athlete must derive the maximum efficiency from himself in the short span of his competitive years, or he will never reach the ultimate in record-breaking performances.

As all coaches know, it takes very little more effort to win an event with an outstanding performance than it does to be an "also ran." For, if the individual is able to carry himself at a faster rhythm over the prescribed course or distance, with less tiring effect, he has added to his future races with the unused energy which was unconsciously placed in r e s e r v e through his conditioning and training program.

This reserve is comparable to the over-drive in a car, which enables the motorist to get greater efficiency and economy by using that special gear. In order to get maximum results from their efforts, the middle-distance and distance runners must do likewise.

The middle-distance and distance runners may develop a high-ratio or high-speed rhythm by arranging their workouts with that goal in mind; that is, to get a more relaxed and less tiring performance. Now, by this we do not mean an athlete is not going to have to put his heart and soul into attaining that goal, for in athletics as in any other endeavor in life that is worthwhile, there is no rosy path to glory and success. The athlete must be willing to perspire freely and work diligently to attain greatness. Greatness is not always a world record, for improvement in each successive race is a world's record for the individual if he betters himself each time, and that is about all we may expect of average individuals.

Training procedures for the middle-distance runner today are far removed from the methods used two decades ago. Formerly, it was thought that if a miler or half-miler did long, monotonous running in his workouts, he would be able to produce to the utmost of his capacity. That reasoning has been proven a fallacy in recent years, for the desire to create speed by human locomotion has kept pace with the motor cars and airplanes.

In mentioning the monotonous type of workouts, we do not mean that today they have been discarded entirely, for they are the backbone of the training for the middle-distance man. That is the foundation from which he adds the faster rhythm to his present running qualities. We will cite an example of too much distance work and little or no gearing up. This particular boy was a member of the track team at North Texas State College, Denton, Texas when we were in school, during the years from 1936 through 1940. He was a great admirer of Paavo Nurmi, and no one could have a greater idol in track. In fact, he looked a great deal like Nurmi. Day after day, this boy's workouts consisted of nothing but distance running, always over the distance he was going to run in the meet that particular week end. He ran the mile and two mile, as we did occasionally, but his times did not improve over the season. In looking at the meet records, the times he made were almost identical for each race during the season. He never seemed to be tired at the end of a race, but did not have the necessary speed work to enable him to carry a faster pace over the same distance with the same amount of exertion, which would have improved his time for the distance considerably. This is no reflection on the boy, for he was truly a track enthusiast; he could talk track as football coaches can discuss the pros and cons of the T and the single wing formations.

Naturally, each boy is an individual and must be treated and thought of accordingly. A certain type of workout which is suitable for one boy will leave something desired in the case of another athlete in preparing him for the coming competition.

Before going into the gearing up aspect of distance running, it must be kept in mind that each boy must have a thorough foundation from which to begin increasing his rhythm. If this foundation is lacking, he will be tearing down all the reserve and latent endurance he has acquired through proper conditioning.

Athletes of all sports should understand the importance of listening attentively and adhering to the suggestions and schedules of workouts which have been set up by the coaches.

One prerequisite which any athlete must have to compete in any sport, no matter what type of workouts his coach prescribes for him, is the burning desire to excel in that particular endeavor.

By doing an exercise which increases the tempo of muscular exertion, the mental powers will also react more readily to changing situations, and be able to respond to numerous race situations. These situations, if met correctly, very often determine the victor in a race.

This burning desire must be inherent in the athlete at all times, from the beginning of pre-season training, through the competitive schedule.

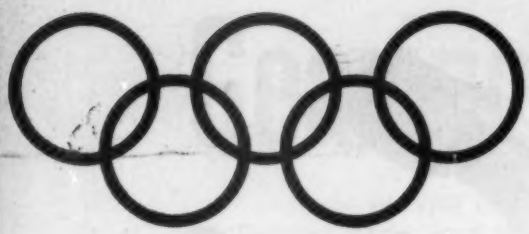
The bugaboo of all athletes is the painful and unpleasant task of conditioning their bodies for the competitive season to follow. No method of workouts will enable the athlete to produce his best unless he has a sound foundation from which to begin his gearing up process.

The term, gearing up, is one we have used with our boys in the eleven years we have coached, and when it is explained to them in the manner of putting a high gear in a car, they understand why we are conducting our workouts in this manner.

Speed workouts are as essential to half-milers and milers as a high gear is to the latest model car. This theory

(Continued on page 52)

WAYNE RIDEOUT graduated from North Texas State College in 1940. He holds the world's record for the three-quarter mile in 3:00.3 set at Princeton in 1938. He also is the holder of the Sugar Bowl two mile relay set in 1936. In addition, Rideout was a member of the distance medley relay team which set a world's record at the Penn Relays in 1938. Following eleven years of coaching in Texas and Nebraska high schools he is now doing ordnance work at Grand Island, Nebraska.



Olympic Prospects

By H. D. THOREAU

Editor, N.C.A.A. Track and Field Guide

THE modern Olympic Games were originally planned by Baron de Coubertin as a series of individual contests, centering around the basic running, jumping, and throwing events of the track and field program, with no team contests and no overall team scoring. That ideal is still adhered to today although some team sports have been added to the program. Track and field is still the center of attraction in this carnival of amateur athletics, probably because it is truly universal, a sport practiced in every country in the world. The track and field program holds the attention of the world while the Games are in progress, and it is how a nation fares in these events that seems to matter. Few recall that the United States dominated the rifle and pistol shooting events in the 1924 Games, or that we swept the women's swimming program in 1932, but they do recollect that the United States took more than its share of the track and field honors at those Games.

It will be in these events that Russia will make its major bid for prominence; and it will be in these events that the United States will once more attempt to set the pace despite the impressive advancements made by many other nations since World War II.

Here then, is a preview of the men who are likely to occupy the attention of the capacity crowds of 60,000 who will be the spectators at the Olympic Stadium, and the achievements of these men will also occupy the attention of millions of others around the world via newspapers, radio, and television.

The first final will be the high jump which will start at 3:00 o'clock on Sunday afternoon, July 20. At first thought this event would seem to be a clean sweep for the United States because last year a full dozen of our boys jumped over the bar at 6 feet, 7 inches or higher, a height that no one outside of this country could negotiate. However, in 1948 the United States seemed to have won the event only to finish a dismal third, fourth and below as the title went to an Australian, Jack Winter. Since that time American high jumpers

have consistently failed to come within three or four inches of their best domestic efforts when engaging in this event on foreign soil.

We should not fail with men like Pappa Hall, Arnie Betton, and Walter Davis who jump 6 feet, 9 inches; 6 feet, 10 inches; and even 6 feet, 11 inches, while our competition is blocked after 6 feet, 6 inches. Our competition will probably include: Winter, the defending champion; Papa-Gallo Thiam, a French leaper from Dakar, West Africa, who did 6 feet, 7⅞ inches two years ago; another Frenchman Georges Damitio, who does 6 feet, 6 inches regularly in his home town, Casablanca, but only 6 feet, 2 inches when he leaves home; a quartet of Swedes, Arne Ahman, who received a gold medal in the hop, step and jump event in 1948; Goran Widenfeldt, who is now an exchange student at the University of Washington in Seattle; and boys like Gosta Svensson and Arne Ljungqvist; Yuriy Ilyasov, the Russian national record holder at 6 feet, 6¾ inches; and Ion Soter of Roumania whose recent jump of 6 feet, 6 inches was great news behind the Iron Curtain. A touch of nobility will be added to the assemblage in the presence of Prince Adegboyega Folaranmi Adedoyin of Nigeria, British West Africa, who cleared better than 6 feet, 5 inches as a student at Queens College in Ireland. Christian de Jongh, a 6 foot, 7¾ inch jumper in 1950 for South Africa, is now a Communist prisoner in North Korea.

How about the American boys? It is difficult to see how anyone other than Pappa Hall may be called the favorite in this unpredictable event. Hall, a stocky, towheaded student at the University of Florida, was the world's foremost jumper last year. He won both the National Collegiate and the National A.A.U. high jump events with 6 feet, 9 inches, and 6 feet, 8 inches. He came within a hairsbreadth of clearing the world's record-breaking height of 6 feet, 11¼ inches last June. If the bumps he received last fall as the safety man on the Florida football team did not take any of the jump out of him, he should do even better this year.

If Walter Davis is able to jump the equivalent of his own height, 6 feet, 8 inches, he will establish a new Olympic record. That record, set in Berlin in 1936 at 6 feet, 7 15/16 inches, has lasted longer than its maker, Corny Johnson, who was found dead on a merchant freighter in San Francisco's harbor several years ago. Davis, in his ungainly way does not look as if he could jump well, but his 6 foot, 9 inch, and 6 foot, 8 inch jumps last spring, plus his work as the key man on Texas A. & M.'s conference championship basketball team in 1951 prove otherwise.

Betton, a slim youth from St. Louis, may be a surprise to everyone. In his relaxed fashion Arnie jumped over 6 feet, 9 inches, and 6 feet, 8¾ inches in neighborhood meets during 1951, and likes to tell about his unrecorded jump of 6 feet, 10 inches.

IT has been our custom in Olympic years to present articles outlining our prospects in the track and field division of the Olympics. For this review we called on H. D. Thoreau who is the editor of the N.C.A.A. TRACK and FIELD GUIDE. In the past he has served as assistant to the commissioner of the Pacific Coast Conference and assistant director of the N.C.A.A. Athletic Bureau as well as editor of a number of other N.C.A.A. guides.

Also aspiring this spring will be Herman Wyatt, consistent Californian; Charles Holding, another tall Texan whose 6 foot, 9¾ inch jump a year ago was the best official effort in the world in the past ten years, but who could not approach that altitude later in the semester; Virgil Severns, the Pan-American Games champion from Kansas State; an 18-year old high school boy, Bernie Allard of Fresno, California; Bill Miller, a Marine recruit whose chosen event is really the javelin, and who high jumps just for the fun of it; and possibly Vern McGrew, one of the 1948 Olympic team members.

We will take a chance on the following finishing order on that Sunday afternoon in Helsinki: 1. Hall (U.S. A.); 2. Betton (U.S.A.); 3. Thiam (France); 4. Damitio (France); 5. Wyatt (U.S.A.); 6. Ljungqvist (Sweden).

The second part of this article will appear in the May issue.

The Fifteen Foot Vault

(Continued from page 7)

way as the bar goes up. The purpose of this is to allow room for a long swing. On lower heights the bar might be displaced during this action. As the bar is raised, there is more space beneath and, therefore, less danger of a miss during the swing. The angle of Laz's body in relation to the pole in *Illustration* 12 is not a good one. Notice that his left leg has already reached for the bar and has started downward. Thus any push-up by the arms at this point would only result in raising the chest and shoulders and not the entire body. For a perfect push-up action it is our belief that the legs and body must not start downward until the pushing action has been completed, and the hands start to release the pole. If Laz had obtained a more vertical angle, and then had kept his legs elevated until the push-up was completed he would, no doubt, have come down on the cross bar and missed the attempt. But if he had pulled the standards nearer the box it would have had the effect of keeping his body more nearly vertical on the pull-up and turn, and would have resulted in a far more effective push-up. In *Illustrations* 14 *and* 15 Laz shows good clearance technique with his elbows out and away from the bar, and his body arched to avoid the bar. Many coaches advise their vaulters to turn their thumbs in at this point. This forces the elbows out and they are less apt to touch the bar.

Cooper

The sequence of Don Cooper shows his actual 15 foot, ⅛ inch vault at the Kansas Relays.

Illustration 1. On his plant Cooper displays a difference in technique from Laz and Richards. His arms and elbows are directly alongside the pole instead of out away from it. This sometimes contributes to a lack of balance on the take-off. Cooper's right knee shows a powerful stride in air action and an excellent lead for a good swing.

Illustration 2 shows action in the middle of the swing where Cooper merely hangs on to the pole waiting for his body to swing farther forward before starting to pull.

Illustration 3. This illustration, we believe, shows the key to the success of this particular vault. Notice the terrific concentration and powerful muscular action of the arms as Cooper starts his pull-up and turn. His body is well-balanced and in excellent position to pull. His knees have come well back toward the pole, thus curling his body around the pole in a compact position beautifully adapted to get the most out of the pull of his arms.

Illustration 4. The turn has not been completed in this illustration and, in fact, is not completed during the entire vault. This is why Cooper moves toward the left standard as he nears the bar. A lack of balance on the take-off could also have contributed to this. In this analysis, without seeing the actual vault, it would seem to us that Cooper must have had a long swing and a terrific pull-up which catapulted his body up very fast. If this were not the case, he could never have cleared the bar from the position of his body as shown in *Illustration* 4. His push-up has started, but since the pole is still leaning backward, he has no base to push from, and can only push the pole away. Therefore, he is getting no help at all from this action but still achieves the height needed to clear. This could only mean that he was still moving upward rapidly as a result of previous action, namely, swing and pull-up. Had he been able to bring his pole to a vertical position and pushed up instead of away, he would, no doubt, have cleared the bar by a far greater margin.

Richards

Richards shows very fine form throughout this series. Possibly his left hand could have been shifted closer to the right on his plant shown in *Illustration* 2. His take-off foot appears to be farther forward in relation to his hands than Laz's. This would mean a shorter swing by Richards, all other things being equal. His swing is much like that of Laz, but he does not start tucking his knees as soon, and waits until he has swung well past the pole. The big difference between Richards and the other two vaulters becomes apparent from *Illustrations* 10, 11 *and* 12. His body angle is much more vertical than either of the others and in *Illustration* 11 he shows how effective a good push-up may be when the body is in this position. All of Richards push is directed against a steady base and he is moving his entire body upward. His right leg is flexed back toward the runway to help keep his body upright. The pole is in his right shoulder, and the turn has almost been completed. Richards has placed the standards so that the bar is directly over the take-off box, far different from the standards set for Laz. His swift rise upward (*Illustrations* 9 *to* 11) shows a great deal of power and indicates that he can handle the weight of his body easily with his shoulders and arms. This is an absolute necessity when championship heights are involved.

In *Illustration* 12 the turn has been completed and Richards' body is in a beautiful clearance position. His legs have started downward but his hands have already released the pole. The balance of the series shows the final phase of the vault. Richards, in this series, used a one-two release with his right hand on the pole well after his left hand released. Laz's release was almost simultaneous. The fact that Richards' hands were not closer together explains somewhat his release since the lower the left hand grips the pole, the sooner it must release the pole.

Conclusion

In conclusion we can only summarize the form of the vaulters on this one particular jump as shown in these sequences. All vaulters have

(Continued on page 52)

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How to Run the 440

By J. KENNETH DOHERTY
Track Coach, University of Pennsylvania

KEN DOHERTY succeeded the late Lawson Robertson as track coach at Pennsylvania after a highly successful coaching career at Michigan. Through his years as track coach, Doherty has been a keen student of the sport as this provocative article on the 440 will readily attest.

THE history of improvement in the 440, and its companion distance, the 400 meters, is one of increased confidence and ability on the part of runners to sprint the first half, and of late years, the first two-thirds of a race.

Very early in the game, before 1870, it was recognized that a man could not sprint all-out for much more than 100 yards; therefore, the 440 should be considered an endurance running race. The tactics at that time were considered similar to those of the 880 or mile, in which a man ran easily, with a good deal of speed held in reserve, for the first three-quarters of the race, and then finished with what speed he had left. In general, quarter-milers were not specialists. For example, in 1868, E. J. Colbeck won the English championship in :50.4 after having taken a second place in the 100 and a first in the 880 in 2.02, for a new English record. A much more startling example was that of Lawrence "Lon" Myers, one of the all-time greats of track athletics. Myers held every American record from the 50 yard dash to the one mile. In 1880 he competed in seven races in a single afternoon and won four American championships in the 100, 200, 440, and 880. In 1881, he won the English championship in a best time of :48.6. Unquestionably, Myers was capable of better time in the 440. He had been clocked at :05.5 for 50 yards; :10 for 100 yards; and 20.2 for 200 yards as well as 1:55.5 for the longer distance. No time is available for the first 220 of his :48.6 race, a fact which in itself indicates that coaches and athletes were not conscious at that time of the importance of this knowledge. We may assume, however, that the time for the first 220 was relatively slow by modern standards, and that Myers was much more "win conscious" than "time conscious."

However, we do know that Wendell Baker of Harvard ran :23.2 for his first 220 in establishing a record of :47.6 in 1886. This was 1.2 seconds slower than his best time of :22.0 for the 220 and gave him split times of :23.2 and :24.4, reasonably close to even pace. The circumstances and handicaps under which this race and many other similar races of this time were held should prove of interest. Tracks then were not the permanent and precisely "dressed" affairs of today, nor were running shoes as dependable. As a warm-up for the 440 record trial, Baker had just equaled the world's record of :10 for the 100 yard dash, but had burst his left shoe in the effort.

"With no spare shoe, and facilities for repairs missing, it was decided to continue. Under the watchful eyes of George Goldie of the New York Athletic Club, G. A. Avery of the Manhattan Athletic Club, and other competent officials, a quarter-mile straightaway was measured off. The loose upper surface of the track was scraped, the temperature was recorded at 81 degrees, a scarcely perceptible wind was noted, the timers took their places, and the trial was on.

"Baker was off at the crack of the pistol, running the first 220 yards in :23.2. . . . At the furlong post, G. P. Cogswell of Harvard joined his teammate. His was the task of drawing Baker out to the utmost. With expert judgment and burning speed, Baker passed 350 yards in :37; at 400 yards the time was a shade under :43. At the finish line the officials looked on in amazement, as Baker, running with one shoe, flashed another burst of speed to snap the tape in :47.6. . . .

"His left foot bleeding slightly after the race, Baker explained what had happened. At 250 yards he had attempted to kick off the torn shoe; at 285 yards he let it loosen and fly off. With his bare foot digging into the dirt track and the tape 155 yards away, Baker simply gritted his teeth and spurted on to a new record."[1]

Several items are important: First, it is of interest that so-called world's records of this period were not official because the International Amateur Athletic Federation was not organized until 1913. A race with no other competitors running the full distance would not be recognized today. Second, that the track had just been scraped certainly embarrasses our modern demands for surface perfection. But more specific to our present purpose is that "Baker flashed another burst of speed . . . and spurted on to a new record." This remark would indicate that Baker had been saving something for the end and had certainly not been running all-out. His best times of :10 and :22 for the 100 and 220 support this view.

Although no times for the 220 are available, Maxie Long did carry a faster pace when he ran :47 for a 440 straightaway in 1900. At the 350 mark he was :36.4; at the 440, :42.2. These times compare favorably with Myers' :37 and :42.9. Long also had been clocked at :10 flat for the 100 so it would appear his potential speed was not greater than that of Baker. On the basis of these times, a person might hazard the guess that Long was about :22.8 at the 220 post.

The first official world's record for the 440 was made by Ted Meredith of the University of Pennsylvania, :47.4 in 1916 when he was twenty-four years old.

Meredith's record remained for 15 years, unbeaten and untied, and the close association between the 440 and the 880 which he fixed in the minds of coaches and athletes continued to influence their thinking and their methods. All coaching books printed during this period and until 1932 either include the 440 in their chapter on middle distance events or, if they give it separate consideration, do so in middle distance terms. For example, Douglas Lowe,[2] an excellent example of the 440-880 combination runner, writing in 1929, argued the case as follows:

"It is, strictly speaking, a mistake to describe the average method of running the quarter, no matter how rapidly and brilliantly, as sprinting, which implies top-gear the whole way and even time, or faster, unless one is prepared to call half-miling sprinting also, on the ground that one attempts to go his fastest all the way,

1. "Wendell Baker — Record Breaker," the *Amateur Athlete*. July, 1935, page 7.

2. Lowe, D. G. A., and Porritt, A. E., *Athletics*, page 162. London: Longmans, Green and Co., 1932.

capping a 53-54 first quarter with whatever burst of energy one may! Therefore, it is probably more logical to confine the term sprinting to races up to and including 300 yards, grouping the quarter with middle distance events, and in particular because most quarter-milers, unless they are pure sprinters attempting an unusually lengthy event, adopt methods of running and tactics similar to those in the half-mile."

This point of view was supported by at least two other influences. The extensive publicity given to Paavo Nurmi's use of the stop watch and his insistence upon the value of even pace undoubtedly had its effect, even upon quarter-milers. Further, the work of such physiologists as A. V. Hill who, in working in 1925 with eight Cornell runners, concluded that men could not go top speed for much more than 100 yards, certainly questioned the wisdom of trying to sprint too fast and too far in the 440.

On the opposing side, however, came the steady and overwhelming evidence gained from actual experience. American tracks, unlike those in Europe and England, adopted the use of the chute, a straightaway of about 220 yards in running the quarter. In a race of this kind there are no lanes and it is a distinct advantage to have the pole position around the curve. Consequently, there was intense competition in a field of six to eight runners to be first at the 220 mark. The first half of the race become more and more rapid, to the point, in fact, where the ordinary 880 man simply could not stay within striking distance of his sprinting rival. Quite naturally, the slow quarter-miler moved up to the 880 where first lap times were also getting faster; and coaches in desperation were shifting their sprinters to the 440.

Dean Cromwell emphasizes the lesson that should have been learned from the great victory of Eric Liddell of Scotland in the 1924 Olympic 400 meter championships. Liddell was best known as a 100 and 220 sprinter, having best times of :09.7 and :21.4, but when religious scruples led him to refuse to run the 100 trials on Sunday, he shifted his efforts to the 400. With almost no experience in the event, he sprinted all-out to a clear lead at the 220 in :22.2, and with both form and judgment, as they thought, gone, "ripped through the tape in :47.6 for a new world's record." Cromwell speaks of Liddell's performance as a revelation that apparently few coaches had eyes to see. The faster that men ran the first 220, the more coaches and physiologists cried that they were wasting energy and working against best time. Most of the answers to these critics agreed that :22 was much too fast, but that keen competition made it necessary. To win they had to stay up, and staying up meant a fast sprint for the pole.

Resigned to their fate, coaches and runners adopted a "float" in the middle of the race. Spalding's book on *Middle Distance Running*, 1925, strongly recommended this method as did F. A. M. Webster in his excellent chapter on the 440:

"The sprinter type of quarter- miler uses a different method. He goes all-out for 75 to 100 yards in the hope of winning the inside berth at the bend of the track. As soon as he has got position, or covered his maximum sprint distance, he relaxes, by dropping his arms a little, and so adjusts his action that he runs lower on the ball of the foot than he would in the sprint action, and his stride lengthens out. He also begins to breathe regularly. On this action he floats through until 140 yards from the finish. Then he gets up on his toes again, sets his arms and legs going to a livelier tune, pitches his body forward to the true finishing angle and lets himself go for the tape."

Then in the Olympic year, 1932, came the tremendous duals between Ben Eastman of Stanford and Bill Carr of Pennsylvania. Eastman had tied the 440 record at :47.4 in 1931 in a great dual with Vic Williams of Southern California, and had just broken the world's 880 record with a 1:50.9. Then, in late May, in a special record attempt at Palo Alto, he cut the 440 time down to :46.4. But on July 4, the relatively unknown Carr whose quarter-miling had been almost exclusively on relay teams, won over Eastman at Berkeley, California in :47 flat and then repeated in the Olympics in a world's record 400 meters in :46.2. Quite apart from the great competitive thrills which these races provided, and which, incidentally, were stimulated by old rivalries between the East and West, they also proved a testing ground for the old argument as to whether a fast 880 man could defeat a sprinter with endurance and just how each would go about doing it. American coaches, including Richard Templeton of Stanford, have consistently assumed that the half-miler would be forced to set a very fast pace and thus run the "kick" out of the legs of the sprinter. Certainly Eastman attempted just this, for, although he seldom ran the 220 and had a best unofficial time of :21.6 he covered the first 220 of the Olympic quarter in :21.4, an unheard of time and a crazy pace judgment. Yet Carr stayed on his heels, was able to run faster than Eastman at the finish, and thus go on to win. Where was the traditional float in such a race? Eastman certainly did not let down at any point for he was trying to build up a lead, nor could Carr do any such special relaxing as Webster's instructions suggested, for he stayed at Eastman's shoulder all the way and must have run within a few tenths seconds of his best previous time. The experts shrugged their shoulders, explained that competitive conditions sometimes force one to ignore economy of effort, and somehow brushed aside the fact that the world's record had been broken by 1.4 seconds. Physiologically, a pace of :21.4 — :24.8 simply did not make sense.

Yet seven years later in 1939 when Rudolph Harbig of Germany ran his surprising :46 for 400 meters, he also sprinted the first 200 meters in :21.8, just .3 second slower than his best time for the 200 meters of :21.5. This gave him a split of :21.8 — :24.2 = :46. Actually Harbig's abilities as a sprinter may have been very high, for although seldom sprinting, he had officially made :10.6 for the 100 meter dash.

Dean Cromwell was fully aware of these times and methods and his own quarter-milers, Vic Williams, Harold Smallwood, Erwin Miller, Hubert Kerns, etc., were certainly trained as sprinters and contributed to the tendency toward an ever-faster first 220. Yet, writing in 1940, this unquestionably great coach stated:

"Experienced runners always cover the first 220 yards faster than the second furlong. If you will time a 50 second quarter-miler of the sprinter type, you will find that he usually runs the first half of his race in close to :24.5 seconds and the second half in :25.5. If the runner is the half-miler type, his first furlong will usually be 2 seconds faster than the second 220, and his furlong times will be approximately 24 and 26 seconds.

"A good general rule is to train the half-miler type to run the opening 220 yards 2 seconds faster than the second furlong and to coach the sprinter type to cover his first 220 only 1 second faster than his last one."

Statements such as this are an in-

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herent part of coaches' thinking even today and they occur contantly at coaching clinics. That there should be a basic difference between the 440 yard dash and all of the longer endurance runs seems unexplainable physiologically. Economy of energy output in the latter races demands close to even pace. How can it be that quarter-miling should be so different?

Yet the fast initial pace continued, almost without exception. No times for the first 220 are available for the marvelous National A.A.U. 400 meter race in 1940 in which Grover Klemmer of the University of California ran :46 flat; Hubert Kerns and Cliff Bourland of Southern California, :46.1; and the sixth man, :46.9. However, Al Diebolt of Colgate, fourth in :46.4 was a very fine sprinter, and pulled out the field at a very fast pace for the first 300 yards.

And then came the greatest trio of all time, Herb McKenley, Arthur Wint, and George Rhoden, all natives of the little island of Jamaica with a population of only one and one-third million people. McKenley first attracted world attention by running :46.2 for the 440 in May 1946, a new world's record. The race started on the 220 straightaway and we, clocking the 220 time very carefully, were amazed to see :20.9 on our watch dial. Two weeks earlier McKenley had made his best personal record for the 220 of :20.6, so that, as with Harbig, he had run within .3 seconds of his potential speed. Just a year later on June 5, 1948 at Berkeley, California, McKenley again ran :20.9 for the 220 in establishing a new world's record of :46. Apparently even McKenley thought a slower 220 would bring better results for he confided to a newspaper man just before the National A.A.U. meet in July that he planned to take it easier this time. Certainly his 220 time was slower, :21.1, but so was his total time of :46.3.

At the London Olympics, Herb McKenley was faced by Arthur Wint, and Mal Whitfield, who had won the 800 meter title in 1:49.2. Herb confronted the dual problem of beating Wint, against whom he had run many times but had never beaten, and that of establishing a new Olympic and world's record to which his previous overall performances certainly entitled him. He felt his only hope of doing either was to burn up the first 220 and, if possible, establish an 8-yard lead over Wint at the 300 mark. Somehow, perhaps it was the soft London track, perhaps it was the tension engendered by Wint, he did neither. His time of :21.4 did give him 8 yards over Wint's :22.2 at the 220, but his deceleration from this point on was very marked and Wint pulled up within 5 yards at 300 and to a 3-yard win in :46.2. In this race, McKenley ran :21.4 — :25.1; and Wint :22.2 — :24. Perhaps the most potent factors were McKenley's fear of Wint's strong finish and Wint's supreme confidence. The spectators were strongly impressed by the difference in relaxation between the two men. Was it Wint's more evenly paced race that won for him, or was it these psychological factors that made the difference?

During the next two years, McKenley broke the :47 flat mark on 53 different occasions, an almost unbelievable record. And in almost every case he piled up a lead by the 220 mark, not merely through superior ability over his competitors, but as a matter of running policy. His earlier mark of :20.6 remained his best for the 220.

But if McKenley found that such an insane pace produced results, perhaps others might do likewise. At least George Rhoden thought it was worth a trial. After winning the 1949 National A.A.U. 400 meters in a surprising :46.4, Rhoden competed in a series of races in Europe, sometimes with, sometimes without McKenley as a competitor. On August 15, 1950, Rhoden met McKenley at Stockholm in 400 meters around two turns. *Track and Field News* tells the story of this attempt by Rhoden:

"At Halsingborg on August 13 McKenley won a solo race in :46.0. Two days later at Stockholm he met Rhoden. Herb drew the fifth lane, George the sixth. Rhoden got off the marks faster than his rival and had two meters on Herb down the backstretch. McKenley was marvelous around the last turn and Rhoden's lead had been reduced to one meter as they entered the homestretch. A furious battle saw McKenley close the gap slowly but steadily to finally come within one-half meter of the leader. But the latter held on to the end and won by that margin. The timers caught Rhoden in :46.0 and McKenley in :46.1.

"At Eskilstuna on August 22 Rhoden decided to have a record attempt. He competed in the 400 meters against Sherman Miller, best American quarter-miler in the high school department, and Sven-Erik Nolinge of Sweden. Eskilstuna's Tunavallen stadium has a 426 meters track which has been often described as Sweden's fastest. Under ideal weather conditions Rhoden ran the best race of his career. He breezed through the first 200 meters in :20.9 and went on to negotiate the second half of the distance as smoothly as ever. At the tape three watches caught him in :45.8 — one-tenth better than McKenley's official 400 meters record... Twenty minutes later Rhoden ran the 100 meters in :10.6, beating Jim Golliday, the A.A.U. junior champion."

Although no space is given in this writeup to the 200 meters in the first race, we may be sure if Rhoden had two meters on McKenley the time was not slower than .21 flat.

One other factor should be given special mention, that of age. These men who ran under :47 for the 440 were unquestionably running very close to their true physiological capacity in terms of speed-endurance. A. V. Hill's eight subjects, six of whom were track men, but only two at the quarter or under distance, began to lose maximum speed after only 70 yards and by 190 yards had lost as much as 12 per cent. Men trained specifically for speed-endurance can be assumed to run much more efficiently than this, yet somewhere within the implications of Hill's work. To run the first 200 meters of a 400 meters race within .3 seconds of one's best is surely reaching close to the maximum in human ability to withstand fatigue. This speed, therefore, demands maturity as well as excellent conditioning.

To the best of our knowledge, the youngest man ever to run under :47 was Godfrey Brown of England, who was just twenty-one years old when he placed second in :46.7 to Archie Williams in the 1936 Olympics. Carr and Eastman were both twenty-two in their best year; Archie Williams, Klemmer, and Rhoden, twenty-three when at their best; Ted Meredith, twenty-four in 1916; Harbig, twenty-six in 1939; Wint, twenty-six in 1948; and McKenley, twenty-eight in 1950. The best age for men who are strictly sprinters has been between nineteen and twenty-three years; that for speed-endurance men as in the 440 is definitely several years older. The human machine needs added years for full development and highest efficiency.

The essential part of the history of quarter-mile running as outlined in this article may be stated as follows: 1) As a change from thinking

(Continued on page 53)

3 points for your side

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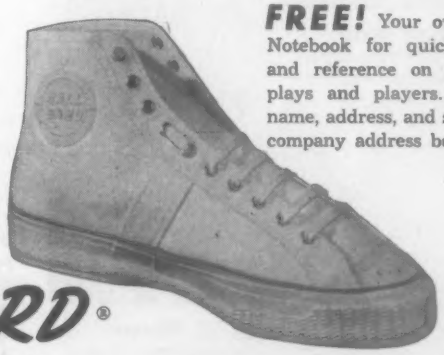

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cus Throw, Broad Ju t Put.
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road Jump, Hop-Step-
ault, High Jump, Two-

university men.)
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One-Mile Relay, Two-
int Medley Relay, Dis-
rd Shuttle High Hurdle

ion
One-Mile Relay, Two-
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ction
20-Yard High Hurdles,
t, Football Throw, Dis-
t Put.
d Relay, One-Mile Re-
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to Iowa High Schools).

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The Drake Relays Headquarters Committee will be glad to make hotel reservations for you and your team. For further information, write Tom Deckard, Drake University, Des Moines 11, Iowa.

Jim Lavery, Drake's great quarter-miler, was named as the "outstanding athlete" in the 1951 Drake Relays. He anchored Bulldog quartets to victory in the 440, 880 and famous John L. Griffith Mile relays last year and is back again for further honors this year.

Psychology of Teaching an Offensive Number System

By SAM CLAGG

Line Coach, Marshall College, Huntington, West Virginia

In the first part of this article which appeared in the March issue the author, who is line coach at Marshall College, presented the offensive number system. The second part presented here deals with the actual psychology of presenting the system to a football squad.

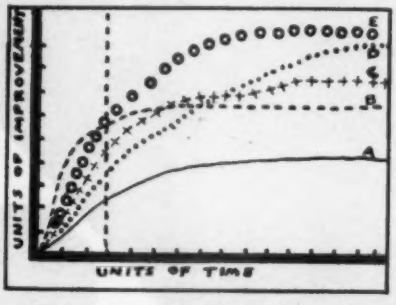
Once interest and a desire for the new system have been created, the next step is its presentation. The matter of individual differences among players does not have a great deal of bearing on this phase of the game. The material is not too complicated for even the slowest learner, for it must be remembered that these players are the ones who at least partially learned a more complicated system. Individual differences as to capacity do enter the picture in a complicated system of plays. Complexity limits the number of plays one may have, due to the limitation of individual capacity. The poorest learner establishes the limit on the number of plays a coach may have. This definitely restricts systems based on a great number of plays. A simplified numbering system, such as this one, would allow the use of more plays because more plays of a simple nature may be learned. Time in the learning of plays is also saved, and time is one of the most important problems with which a coach has to deal. Research studies show that when the amount to be learned is doubled, the number of necessary repetitions for the learning is multiplied many times. The material contained in the followng table and its explanation by Griffith presents the case.

Repetitions	1	16.5	30	44	55
No. of Syllables	7	12	16	24	36

The figures in the table mean that after one repetition the average learner can recall about seven nonsense syllables. If five are added to this number so that the learner must now memorize twelve syllables, the number of repetitions jumps to more than sixteen. Add only four more syllables and almost fourteen repetitions must be added. These facts suggest that the more there is to learn, the greater must be the number of repetitions, not in a one-to-one ratio, but in a ratio that increases the number of repetitions out of all proportion to the increase in the amount to be learned. That is, if the amount to be learned is doubled, the number of necessary repetitions must be multiplied many times. (From Griffith, *Psychology and Athletics*, p. 97)

The players are also motivated by their desire to become team members. That they are present is evidence of that motive. Motive alone serves an important function in the learning process.

What has been written thus far must not be interpreted as an attempt to minimize the importance of individual differences in athletics. It is a teaching aspect that must never be overlooked, but it is more important in some phases of the game than in others. The diagram shows individual differences in regard to learning.



This diagram shows how individuals may differ in the rate at which they can learn and in the final limit of their ability. Curve A represents an individual who learns slowly and whose limit of achievement is low. B represents an individual who learns very rapidly but who soon approaches a fairly low limit of potential skill. C is an average individual. D is a slow learner but he has a high potential skill. He may ultimately equal or surpass E who is a fast learner with a high psychological limit.

At the end of the third practice period (indicated by dotted line) the coach might select E and B as his best prospects and overlook D. As time goes on, however, B would drop in skill with respect to the others, while D would gradually come into his own. It is in the diagnosis of matters of this kind that a coach reveals his own skill and understanding. (From Griffith, *Psychology and Athletics*, p. 87-88.)

The first items to be established are those already known, or in other words, those retained from the old system. An example of this would be the basic offensive formation, the same use of symbols, etc. The next step would be to teach items that have been slightly altered from the old numbering system. This would include the hole numbers. A look at Diagrams 1, 2 and 3 will show that the offensive men were numbered to correspond as nearly as possible with the location of the hole in the old numbering system. This, of course, was not necessary, but it facilitates learning in that it places the new holes in fair proximity to the old holes. All new items, similar to the old, should now be presented.

These new items, similar to the old, would include the 8 and 9 areas as still being the same; the backs may retain their same nomenclature. It would also be well to ask and invite questions during this presentation. The players' questions should be relevant to what is being presented so the coach will not be forced into some future step of the presentation that is not connected with what has been given. Should questions that do not pertain arise, they should be set aside until the place for them in the discussion has been reached. Doing this maintains continuity and often saves time, for the question is likely to be answered anyway in the plan of the discussion.

The items of the old and near-old furnish the foundations for the establishment of the entirely new material. This is the groundwork for the new terminology. The new terminology is based on the offensive rather than the defensive formation. This terminology is the most important phase of the system. It must be descriptive; it must state briefly, precisely, and in an orderly manner exactly what the action is to be. These are the main requirements of the terminology that denotes action. The terms applied to the defensive men must also be exact and descriptive. They should be so clear that no matter where the defense locates itself, the terminology would locate the proper defensive man to be blocked with no mental confusion.

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The coach and his staff are responsible for the selection of these terms. They must correspond to what the coach wants done. In order to accomplish this, the coach must be something of a writer.

A coach will do well in his active terminology to retain the descriptive words of his coaching if possible. Most coaches make use of brief, meaningful words such as "snap," "uncoil," "resist," "cut," "follow," and others. For example, the coach wants a blocker to (1) move on the defensive man as rapidly as possible on the signal, (2) maintain the best form the situation allows, and (3) move the defensive man aside to form a hole. These three steps may be condensed into three descriptive words such as "snap — persist and resist." The terms "to — through and beyond" may be applied to a downfield block.

In the terms used in the preceding paragraph, one cannot help notice the rhythm in the phrase. A rhythmic term is not necessary, but is believed to have some psychological value. Many have noticed the rhythmic dripping of a faucet at night. Actually the intensity of this sound does not change, but once attention is focused on it, it seems to become louder. This soon becomes so intense that it shuts everything else out of being and results in an emotional state that motivates an individual into action. Many writers have tried to produce emotional effects by a play on words. This same rhythm might drive an athlete to action that is so specific it would exclude any other occurrence. If not, to say the least, the rhythm aids in learning and retaining the terms.

The terms that denote location must merely be specific. Instead of saying "trap the tackle," that term becomes "trap the first man past four hole." These terms may be longer than the ones used previously, but they are infallible.

Because they have meaning, these terms will be learned better and retained longer. They will also be in common use throughout the squad. There will no longer be four or five ways of saying the same thing, but one common set of descriptive symbols will be used. This will make the players on a team better able to understand each other and will bring them closer together as a unit. The fact that a set of words belongs to a specific action makes them easier to learn.

This is only one of the elements contained in this system that contributes to what is known as morale. The term "morale" means a unity of mental effort directed toward one objective — playing the game well.

Another feature of this system that has an effect on mental attitude is the fact that the team becomes an independent entity able to function regardless of the defense. The newness of this system, to the extent that other teams do not have it, is also a factor that assures confidence. These are the foremost of the factors that contribute to intangible mental advantages.

The only thing remaining is to present the play diagrams to the players. This is the initial introduction of printed material. This material contains everything that has been presented previously; that is, the new play holes, terminology, etc. This has been kept from the students until now, in order to gain their undivided attention. Students do not follow spoken material very well when they have the same material printed and in their hands. They have a tendency to get ahead of the speaker, lag behind, or ignore him completely, with the thought that they may get it all later. This serves to divide attention.

By withholding the printed material until after the discussion, the coach makes use of the maximum of what Milton calls the "gateways of knowledge." This uses the best avenue of approach to learning in each individual. By lecture the players heard the material, or use of the sense of sound was made. By taking their own notes first, and receiving the printed material later, some attention is directed toward learning by sight. These form the basis for future learning by doing. Learning by doing is by far the most important in the athletic world. Use of the blackboard is necessary, and movies of plays from previous games that show failure of a play due to a mental error in assignment are also helpful.

All of the classroom material relative to this system should be presented with the following in mind. The classroom should contribute to the learning process rather than distract from it. It is necessary to keep in mind the attention span of the players. Three or four meetings, depending on the learners, may be required for the dissemination of this information. To try to force material on them after interest wanes, or to attempt to have them grasp at one time more than they are capable of, is, for the most part, a waste of time. This procedure also has a tendency to cause confusion of the learned material.

In presentation, the coach should have some recitation. Material learned by the recitation process is more effectively grasped. Research by psychologists shows that as the amount of time devoted to recitation increases, the benefits from the total time spent also increase.

Player discussion, along with the taking of notes, previously referred to, will add much to learning while in the classroom. Another added item that will produce learning through classroom action will be the introduction of oilskin paper overlays that have various defenses printed on them. These transparent overlays have defenses printed to the same scale as the play diagrams. The players are encouraged to place the transparent defenses over any of the plays. Then they check the offensive rule assignments against the defenses in order to test the rule. This will stimulate learning as well as build up confidence in the system. Confidence in what is being done, and the way it is being done, is one of the important products of this procedure and is of great value.

EFFECT OF RECITATION ON AMOUNT TO BE REMEMBERED

Distribution of Time	Percentage Remembered			
	Biographies		Non-Sense Syllables	
	Immediate	4 hrs. Later	Immediate	4 hrs. Later
No recitation	35	18	35	15
1/5 recitation	37	19	50	26
2/5 recitation	41	25	54	27
3/5 recitation	42	26	57	37
4/5 recitation	42	28	74	48

(From Berrien, Practical Psychology, p. 11)

HOW METHOD OF PRESENTATION AFFECTS THE AMOUNT RECALLED

METHOD	IMMEDIATELY	3 DAYS LATER
HEARD	70%	10%
SEEN	72%	20%
SEEN AND HEARD	86%	65%

(From Berrien, Practical Psychology, p 324)

The next, and final step, is the actual working of the system on the practice field. The players, by now, should be eager and ready to put their new system into actual practice. Here, through work, trial and error, and repetition, the assignments and their executions become ingrained in the minds and bodies of the players.

The principle of exercise is put into effect in this way, and the part which is desired becomes fixed through repetition. What to do, and the method of doing, is practiced until it becomes second nature, that is, committed to the nervous system. This means to indicate thought and action on the part of the subconscious mind. A player cannot perform well if he has to give thought to rote movements. For example, a tennis player could never give thought on where to place a ball if he had to think through the swinging process. By the same token, it would be difficult to play a piano and sing at the same time. To a football player, this would mean that his mind is free to cope with his immediate problems. It would, at the very least, allow him to get off on the "go" signal. If an athlete is consciously thinking of anything else, he must be tentatively acting about something else. This, however, is more in keeping with mental stance which has less to do with the subconscious. Mental stance is more of a focus on one act to the point that it excludes everything else. An example of this would be a track man waiting for the starting gun.

The fact that this system of numbering plays, at least in our mind, is superior to systems now in common use will have no little psychological affect on the players. They will have a feeling that they cannot be beaten by an opponent because of defensive strategy. Any defeat suffered would be from human failings, and this would be motivation toward more serious work and the elimination of these failings. Here lies the true value of educational psychology in that it lends itself to the highest realization of individual worth.

Finally, it is believed that the nature of this system, as explained, contributes much to what we call "teamwork." All of the psychological implications of this system of football and its presentation have not been discussed here. Too much is unknown. As for the teaching of the material, the psychology seems sound, inasmuch as it has been drawn from writers in educational psychology. The statements on the psychological values of this system had to be drawn from other activities and related to this specific topic. This gives them some basis of fact, with their final proof resting in the test of this system. There may be more psychology involved – or less. That is the sorrow, or delight, of speculating on a new outcome – it cannot be proven or disproven. At any rate, we hope the reader closes this work more enlightened psychologically than when he started.

Bibliography

1. Griffith Coleman R., Psychology and Athletics. New York, Charles Scribner's Sons, 1928. 281 pp.
2. Berrien, Frederick K., Practical Psychology. New York. The MacMillan Company, 1944. 584 pp.

Coaching School Directory

ADELPHI COLLEGE C. S.

Garden City, L.I., New York Aug. 4-6
Courses—Basketball and public relations.
Staff—Harry Combes, Royner Greene, "Dick" Crawley, and John F. Condon. Others to be announced.
Information—Tuition $15.00 includes room, set of notes, and ticket to all-star basketball game.
Directors—John E. Sipos, R. L. Simpson High School, Huntington, L.I., New York and George Faherty, Adelphi College, Garden City, L.I., New York.

BELOIT COLLEGE

Beloit, Wisconsin June 12-14
Courses—Basketball.
Staff—Dolph Stanley.
Information—Tuition $25.00 does not include room and board. Average cost of room $1.50 per day.
Director—Dolph Stanley, Beloit College, Beloit, Wisconsin.

CALIFORNIA WORKSHOP

San Luis Obispo, Calif. Aug. 10-22
Courses—Basketball, baseball, track and training.
Staff—To be announced.
Information—Tuition $5.00 per unit. Room $5.00 per week; board $1.55 per day.
Director—Robert A. Mott, Director of Physical Education, California State Polytechnic College, San Luis Obispo, California.

COLBY COLLEGE

Waterville, Maine June 19-21
Courses—Football and basketball.
Staff—James Tatum and Edgar Hickey.
Information—Tuition $17.50 does not include room and board. Average cost of room $2.50 per day; board $3.00 per day.
Director—Ellsworth W. Millett, Box 477, Colby College, Waterville, Maine.

COLORADO, UNIV. OF

Boulder, Colorado June 16-21
Courses—Football, basketball, baseball, track and training.
Staff—Fritz Crisler, Dal Ward, Sparky Stalcup, Bebe Lee, Frank Prentup, Frank Potts, and Aubrey Allen.
Information—Tuition $10.00 does not include room and board. Average cost of room 75 cents per day; board $1.75 per day.
Director—Harry G. Carlson, University of Colorado, Boulder, Colorado.

IDAHO COACHES ASSN. C. S.

Boise, Idaho Aug. 11-16
Courses—Football, basketball, track, and training.
Staff—Don Faurot, Babe Curfman, Eddie Cole, Babe Cassia, "Tippy" Dye, Stan Hiserman, and "Dubby" Holt.
Information—Tuition $10.00 for members; $15.00 for non-members. Dormitory rooms available.
Director—L. L. Patterson, South Junior High School, Boise, Idaho.

See advertisement page 59

ILL. NORMAL-WESTERN C.S.

Macomb, Illinois June 10-11
Courses—Football, basketball, wrestling, tennis, and officiating.
Staff—Sid Gillman and Frank "Buckey" O'Connor.
Information—Tuition free.
Director—Ray Hanson, Western Illinois State College, Macomb, Illinois.

NORTHERN ILL. TCHRS. COLL.

DeKalb, Illinois June 17-18
Courses—Football and basketball.
Staff—To be announced.
Information—Tuition free. Average cost of room $2.50 and board $2.50 per day.
Director—George G. Evans, Northern Illinois State Teachers College, DeKalb, Illinois.

INDIANA BASKETBALL SCHOOL

Kokomo, Indiana Aug. 14-16
Courses—Basketball.
Staff—To be announced.
Information—Tuition $10.00. Average cost of room $3.00 and board $3.00 per day.
Director—Cliff Wells, Box 83, Tulane University, New Orleans, Louisiana.

KANSAS, UNIV. OF

Lawrence, Kansas June 6-Aug. 2
Courses—Elementary and advanced basketball; theory and practice of athletic training; and advanced football.
Staff—Dr. Forrest C. "Phog" Allen and J. V. Sikes.
Information—Regular summer session tuition.
Director—Henry A. Shenk, Dept. of Physical Education, University of Kansas, Lawrence, Kansas.

LOGAN'S TRAINING CLINIC

Pepperdine College Sept. 1-3
Los Angeles, Calif.
Courses—All phases of training.
Staff—Roland "Kickapoo" Logan, Dr. William Allen, Dr. Harvey Billig, and others to be announced.
Information—Tuition $12.50.
Director—Student Health Department, Pepperdine College, Los Angeles, California.

NORTHERN MICHIGAN C.S.

Marquette, Michigan July 31-Aug. 2
Courses—Football and basketball.
Staff—To be announced.
Information—Tuition $10.00 includes room and board.
Director—C. V. "Red" Money, Northern Michigan College, Marquette, Michigan.

MICHIGAN, UNIV. OF

Ann Arbor, Michigan June 23-July 5
Courses—Football, basketball, track, golf, gymnastics, and intramurals.
Staff—Bennie Oosterbaan, Ernie McCoy, Don Canham, Albert Katzenmeyer, Newton Loken, and Earl Riskey.
Information—Tuition $20.00 resident; $30.00 non-resident participation; $50.00 non-resident credit. Average cost of room $1.00

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Supervisor of Course—Howard C. Leibee, Waterman Gymnasium, University of Michigan, Ann Arbor, Michigan.

OHIO H.S. COACHING SCHOOL

Akron, Ohio **Aug. 12-15**

Courses—Football.
Staff—To be announced.
Information—Seventh annual coaching school sponsored by the Ohio High School Football Coaches Association.
Director—Bob Harper, Akron Board of Education, Akron, Ohio.

OKLAHOMA COACHES ASSN.

Oklahoma City, Oklahoma Aug. 11-15

Courses—Football and basketball.
Staff—George Sauer, Dallas Ward, and J. B. Whitworth.
Information—Tuition $5.00 does not include room and board. Average cost of room $4.00 to $5.00 and board $3.00 per day.
Director—Clarence Breithaupt, 3420 N. W. 19th St., Oklahoma City, Oklahoma.

OREGON, UNIV. OF

Eugene, Oregon July 7-11 and 14-18

Courses—Football, basketball, baseball, and track.
Staff—Len Casanova, L. R. "Dutch" Meyer, Johnny Wooden, Bill Borcher, Don Kirsch, and Bill Bowerman.
Director—Dean P. B. Jacobson, School of Education, University of Oregon, Eugene, Oregon.

See advertisement page 57

PENN STATE COL.

State College, Pa. June 10-Aug. 29

Courses—Football, basketball, baseball, track, soccer, gymnastics, wrestling, and lacrosse.
Staff—Charles A. Engle, Elmer A. Gross, F. Joseph Bedenk, Charles D. Werner, William Jeffrey, Eugene Wettstone, Charles M. Speidel, and Glenn N. Thiel.
Information—Tuition $9.00 per credit, plus 40 cents per credit health service fee. Double room $36.00 for six weeks; single $42.00. Board $75.00 for six weeks.
Director—M. R. Trabue, 102 Burrowes Building, State College, Pennsylvania.

See advertisement page 56

SO. CAROLINA COACHES ASSN.

Columbia, South Carolina Aug. 10-15

Courses—Football and basketball.
Staff—Charlie Caldwell, Jess Neely, Rex Enright, and Hank Iba.
Information—Tuition for members $7.50; non-members $15.00. Room is free and board is approximately $2.00 per day.
Director—Harry H. Hedgepath, 1625 Harrington St., Newberry, South Carolina.

SOUTH DAKOTA ATHLETIC ASSN.

Huron, South Dakota **Aug. 18-21**

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Common Errors in Planning Facilities

By FRED E. HOWELL

Athletic Director, Wesley Junior College, Dover, Delaware

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THERE are many common errors that may be committed in constructing physical education, recreation and athletic areas which are overlooked, due to the fact that they are often obvious. We have attempted to point out the common errors which should be avoided.

Long-Range Planning for Facilities for Physical Education and Recreation

1. The failure of designers and program specialists to work together and pool their interests. 2. The absence or ignorance of desirable standards. 3. Policies of false economy. 4. Too often we imitate the facilities of others and repeat the same mistakes over and over again. 5. Both indoor and outdoor facilities are often not planned for a variety of activities, or they are too small to provide seating and playing space for even a fraction of the student enrollment. For example, few institutions provide a sufficient number of tennis courts. 6. Planning a building for outside appearance rather than for inside functional arrangement. 7. Failure to provide for possible needed remodeling, additions, and extensions. 8. Misplaced emphasis on the accommodation of spectators, rather than on the multiple functional requirements of instruction and recreation. 9. Failure to plan for a sufficient amount of spectator seating space where it is needed. 10. Failure to plan for efficient traffic flow through congested areas; for isolation of the gymnasium and pool wing; for isolation of the auditorium, music, craft, arts room, shops, etc., for foyers including toilets for public use in connection with athletics and dramatics.

11. Lack of planning for installation of baffles between the dressing and locker room entrances and general traffic lanes. 12. Insufficient planning for panel doors in areas of heavy usage. 13. Failure to take into consideration the type of locker or basket-locker system and shower plan in planning the size of the central dressing and locker room. 14. Failure to plan for multiple use of the facilities, especially in areas where space is limited. 15. Preparing detailed plans before the general plan has been submitted to the authorities responsible for the development of the area and adopted by them. 16. Failure to take into consideration the facility of circulation and access. Planning should make it easy for people who come to areas to engage in or watch activities to reach the sections where these activities are carried on. For example, gates and paths should be located properly to enable people to reach a grandstand or swimming pool without crossing areas used for active play. 17. Failure to study errors of omission and commission disclosed in actual operation of the various facilities visited and to notice those characteristics which have proved desirable over a tested period of time. 18. Failure to avoid congestion in a field house by planning that about two-thirds of the lobby should accommodate the box office and ticket purchasers, while the remainder should be reserved for ticket holders who should have direct access to admission gates. 19. Failure to plan the plumbing and heating of buildings carefully which would reduce costs. Plumbing units should be in the same section of the building, and toilet rooms should be above one another.

Outdoor Winter Sports Areas

1. Improper orientation of artificial outdoor areas for winter sports, such as ice hockey rinks, ski, sled, and toboggan slides. They should be constructed, if possible, in shady areas. The rink should run north and south, shielded from northerly winds, and protected from the sun as much as possible. 2. Failure to use natural features. Natural slopes may often be used to advantage for winter sports. 3. Spraying over an old surface of ice just adds a layer of snow ice which becomes soft easily. Snow or slush should be prevented from gathering by scraping. 4. Failure to install a removable drain on the tennis court, so that a plug may be inserted before it is flooded for skating. 5. Failure to provide adequate water inlets near the area to be flooded. 6. Failure to provide drainage outlets for skating areas to relieve rain water and melted ice. 7. Failure to provide slides (coasting, ski, toboggan) facing north or northeast in a location where the maximum amount of safe outrun is available. 8. Failure to follow the advice of experts in planning and constructing a ski jump.

Outdoor Areas for Physical Education, Athletics, and Recreation

1. An insufficient number of outdoor facilities for the number of people who intend to use these areas. 2. Fields located too far away from the center of the campus to permit their being used regularly. 3. Too much space used for parking areas. In the case of a college too much space used for buildings. 4. Sometimes drainage is poor. The surfaces often are dangerous, and no provisions are made for all kinds of weather. 5. Possible multiple use of the areas is often overlooked. 6. Dressing facilities, storage space, drinking fountains and water sprinkling facilities are often inadequate or lacking entirely. 7. Running tracks are too often built without the services of a surveyor to insure official width and distance. Jumping pits, insufficient in number, have been constructed with unprotected side walls. 8. Few available tennis courts have all-weather surfacing, the drainage is often toward or away from the net, making it necessary to lower or raise the net to an unofficial height. Courts and fields are not situated properly for the needs of the players and spectators.

10. Failure to provide a sufficient number of water outlets for drinking and sprinkling purposes, and failure to have them placed at strategic positions. 11. Failure to provide better materials for construction which

would result in a considerable saving in maintenance, since maintenance costs are in direct relationship to construction costs. 12. Providing too much subdrainage, which deprives the turf of needed moisture. 13. The failure to take into consideration the following factors in determining the most suitable surface for a given area: a. Climatic conditions, such as freezing, thawing, heat, and rainfall. b. Natural soil conditions. c. Location and size of area. d. Type of activities to be carried on. e. Length of playing season. f. Intensity of use. g. Availability of materials. h. Initial cost and maintenance costs. 14. Failure to realize that different climatic and soil conditions necessitate the use of various types of grasses in different parts of the country. 15. Having the baseball field overlap the football field and running track. Baseball and track seasons overlap, resulting in interference; the curbed track is detrimental to ball playing; and the skinned infield is disadvantageous to a good football field. 16. Placing the scoreboard where it cannot be seen by all spectators. 17. Many of the surfaces are abrasive, hard on the participants' feet due to lack of resiliency, slippery, hot or soft in the summer, or they soil the participants' clothes.

18. Failure to install water pipes and other plumbing before the area is surfaced. Pipes should be laid while the grading is being done, in order to save expense. 19. Providing an overhang with barbed wire on top of the fence surrounding the athletic field. This is dangerous, unattractive, and frequently forbidden by law. 20. Using pipe that is not large enough to serve future as well as immediate needs. Not having the pipe laid below the frost line if climatic conditions necessitate it. 21. Failure to determine the position of lights in outdoor areas before work is begun, in order that conduits for wires may be laid before surfacing is completed, and poles and other equipment may fit in with the general plan for the area. 22. Failure to eliminate the use of overhead wires. 23. Failure to provide a minimum number of entrances to ease the problem of supervision. 24. Direct light rays from the lighting arrangement striking the players or spectators in the eyes. 25. The presence of shadows due to incorrect arrangement of lights. 26. Failure to have sufficient room between the football field sidelines and the edge of the track to allow for certain field events to be carried on in front of the grandstands.

Layout of the Athletic Field and Outdoor Areas for Men and Women

1. Attempting to crowd a program for both men and women into facilities designed for only one sex. Often this results in male dominance and lack of female participation. 2. The college athletic field is often too far from the center of the campus. 3. Failure to provide suitable or sufficient facilities for use by girls and women. 4. Failure to provide convenient access to field facilities so it will not be necessary to trespass on other activity areas. 5. The idea held by many that the college is obliged to furnish parking space for all spectators at all games and contests, thus resulting in too much space being used for parking areas. 6. Failure to separate facilities for intercollegiate athletics from the areas of other programs.

7. Failure to locate joint activity areas near the gymnasium of the sex which is more interested in their use. 8. Failure to locate field areas close to the gymnasium of the sex for which they are reserved. 9. Failure to have all fields easily accessible to service units such as dressing, bathing and toilet facilities. If this is not possible, a building should be provided for these services. 10. Lack of adequate protection for spectators, passersby, etc., on the playing areas such as archery, etc. 11. Failure to provide enough facilities such as tennis courts, softball, etc., for the number of students who want to participate. 12. Failure to have outdoor fields and courts properly orientated in order to make them more comfortable for players and spectators. Rectangular fields and courts should be constructed north and south so that the sun is at right angles to the normal flight of the ball; and baseball fields should be built so that the sun is at right angles to the flight of the ball from the pitcher to the catcher.

The High School, College or Community Stadium

1. Insufficient toilet facilities to accommodate crowds. 2. Inadequate provision for the usual concessions. 3. Player and spectator areas are not properly separated. 4. Unfinished and unused under-stadium space which could be used for many facilities such as toilet, dressing, storage, etc. 5. Failure to build with consideration for possible future expansion. 6. Failure to observe errors of omission and commission disclosed in the operation of other stadiums visited, and failure to observe those characteristics which have proved to be desirable over a tested period of time.

7. Failure to have the stadium properly situated so that the afternoon sun will not be in the spectators' eyes. 8. Failure to provide sufficient exits and entrances properly distributed to handle the crowds adequately. 9. Failure to provide a drainage system which will carry off a peak load if the stadium is located in an area where a storm sewer network must carry off the collected water in case of a cloudburst. 10. Failure to provide unobstructed sight lines to all parts of the field which clear the heads of the spectators seated in front. 11. Failure to locate drinking fountains, faucets, and containers so that groups gathering about them will not impede the orderly circulation of the crowd. 12. Locating drinking fountains in toilet rooms.

The Indoor Area for Physical Education, Athletics and Recreation

1. Slippery or splintery floors. 2. Low ceilings or obstructions which prevent basketball from being played properly. 3. Inadequate lighting, either natural or artificial in gymnasiums. 4. Leaking skylights. 5. Permanent or portable bleachers which occupy valuable playing areas. 6. No soundproofing in activity rooms. 7. Routing of traffic which requires students wearing street shoes to walk across main gymnasium floors to reach the dressing rooms or other facilities. 8. Supporting columns which obstruct the view of the spectators and form dangerous hazards to players in the activity areas. 9. Protecting baskets fastened to the light fixtures rather than to the wall or to the ceiling. 10. Lighting fixtures not installed before the walls and ceilings are finished.

11. Lack of adequate and convenient light plugs to meet needs for special occasions. 12. Radiators not recessed in walls, or placed above the height of the players. 13. Failure to realize the importance of having at least one cuspidor in the main gymnasium for players to use during activity periods. 14. Failure to provide mechanical ventilation, particularly in locker rooms and places where window space is limited or non-existent. 15. Large window panes resulting in expensive replacement. Panes should not be too large since many are broken, and re-

placement costs are much less for small ones. 16. Providing insufficient window space. One-fourth to one-fifth of the total floor area in window space is satisfactory, providing the windows are on opposite sides of the gymnasium. 17. Construction of seating arrangements with poor sight lines to activity areas. 18. Failure to provide ventilated space below the gymnasium floor. 19. Construction of stairways or stair wells within the gymnasium, and allowing other projections into the gymnasium such as pipes, radiators, and air shafts. 20. Failure to provide vestibules for exits from gymnasium, dressing, and locker rooms to play fields. This creates a problem of operation and maintenance.

21. Failure to provide overhead framework or pipes for suspended apparatus; anchor plates for floor and wall apparatus, and wall cups and eyes for nets. 22. Failure to provide motor driven and soundproof partitions in gymnasiums to make additional teaching stations. 23. Failure to provide sufficient and appropriate electrical outlets in gymnasiums and other activity teaching rooms. 24. Placement of electrical outlets in the floors rather than in the walls. 25. Poor arrangement or lack of planning for installation of baffles between dressing-locker room entrances, and general traffic lanes. 26. Failure to provide appropriate and necessary zone ventilation in gymnasiums, activity, dressing, shower, toilet rooms, and lockers with particular reference to the removal of excess heat, moisture, and smoke caused by spectators. 27. Failure to provide for zone heating in the gymnasium. 28. Failure to provide suspended lighting fixtures in activity rooms, shower, toweling, and dressing-locker rooms. 29. Failure to construct shower, toweling, and dressing-locker rooms with sufficient floor fall and drains. 30. Failure to provide a moistureproof or water-resistant covered base under the lockers in the dressing room. 31. Failure to provide for dead air space if the floors are laid on concrete. 32. Failure to provide brass pipes and access to these pipes if they are in the walls. 33. Failure to have protecting baskets over the lights attached to the ceiling rather than to the fixtures.

The Swimming Pool in Schools, Colleges, and Recreation Centers

1. Too often the swimming pool is located in the basement and does not have adequate light. It is advisable to place the pool on the south side of the building in order to get more sunlight. 2. The dimensions are often too small to allow for official contests, and the galleries are not spacious enough for large numbers of spectators. 3. Low ceilings and girders which interfere with diving board activities are a great mistake. These should be unobstructed for a minimum of 15 feet above the water level. 4. The deck surfaces are often too slippery, resulting in a dangerous hazard. They should be of non-slip material. 5. Steps and ladders are often improperly located in the pool. 6. Poor acoustics — the walls and ceiling should be acoustically treated. 7. Failure to determine carefully the nature of soil and sub-surface soil before construction is begun in order to give ample protection against settling, freezing, cracking, and leaking. 8. No separate door for the spectators to use as a means of keeping those wearing street clothes off the area surrounding the pool. 9. Failure to insulate the ceiling properly. This results in condensation on ceiling and walls. 10. Failure to provide access tunnels completely around the pool to permit easy access to piping equipment and underwater lighting, resulting in exceptionally high repair costs.

11. Failure to have runways slope toward the pool with outlets connected with the scum-gutter system. This is less expensive to install and maintain than to have the runway slope away from the pool with outlets leading directly to the sewer system. 12. Failure to provide a means for servicing swimming pool lights. 13. Failure to provide for zone heating in the pool wing. 14. Failure to provide several submerged inlets on each side wall for good circulation. 15. Failure to cover inlets and outlets properly for the protection of swimmers. 16. The tendency to build too large an outdoor swimming pool. 17. A veneer door should be provided in moist areas. 18. Failure to provide lights in the pool which would indicate that it has been drained, and thus prevent anyone from jumping into an empty pool. Doors that can be locked to prevent unsupervised swimming are necessary. 19. Failure to provide rounded corners in the pool to facilitate cleaning. 20. Placing ladders at the ends of the pool. thus hindering the turn of the swimmer in swimming events.

The School Physical Education Plant in Elementary, Junior, and Senior High Schools

1. Insufficient storage and office space. 2. No soundproofing in activity rooms. 3. Lockers and showers are placed too often in small, dark, basement areas which are difficult to keep sanitary. 4. Floors in locker rooms and showers are often slippery. 5. A combined gymnasium auditorium should be provided. 6. Failure to consider the official rules relative to length, width, and height of playing courts and pools. 7. Storage rooms are often poorly planned, insufficient, and inaccessible. 8. Failure to provide acoustics in teaching rooms and in the gymnasium and swimming pool. 9. Placing electrical outlets in floors rather than in ceilings. 10. Failure to provide a means for servicing the gymnasium and locker. 11. Failure to provide for the efficient flow of traffic through congested areas both indoors and outdoors. 12. Provision of inappropriate and unsuitable floor and wall materials in such rooms as the gymnasium, shower, toweling and dressing-locker room; for example, soft wood or mastic floors and plaster wainscoting in gymnasiums, porous concrete floors and plaster walls in shower and toweling rooms. 13. Failure to provide covered base and bull nose corners for the walls. 14. A common error is the failure to provide veneer doors in moist areas. 15. Panel doors should be provided in areas of heavy usage. 16. Failure to provide mud scuffs and drills, outside all entrances from play areas. 17. Spectators routed in such a manner that they cross the playing court or any other activity area indoors or outdoors. 18. Failure to have the dressing and locker rooms on the same floor as the gymnasium and adjacent to it. 19. Failure to provide outdoor basketball courts with backboards of a non-corroding material in order to eliminate warping due to moisture.

Combination Public School and Recreation Center in Elementary, Junior, and Senior High Schools

1. Poor inter-relation among instructional, recreational, service, and administrative facilities. 2. Failure to provide suitable facilities for community use such as meeting rooms, physical activity rooms, and dressing-locker suites. 3. Failure to plan and construct combined public school recreation centers to serve effectively the requirements of the school program, and the recreation needs of the people of the neighborhood and community. 4. Failure to group the facilities near one end of the school building, in a special wing or separate building in order to limit access to other parts of the building and to facilitate efficient control, economical maintenance, and operation. 5. Failure to provide an attractive, well-lighted, and well-ventilated ground floor room. 6. Failure to provide special cupboards for storing equipment, tools, and materials used for community groups in art rooms, craft shops, and other rooms.

7. Failure to provide separate lockers for community use in locker rooms serving the gymnasium, swimming pool or outdoor recreation areas. 8. Failure to have control heating and lighting for parts of the school used by community groups, thus reducing heating and lighting costs. 9. Failure to provide for closing off corridors and hallways where necessary in order to control community use after school hours, and to prevent excessive custodial service costs for this purpose. 10. Failure to provide a playroom which opens on the playground that is large enough for a variety of activities, and contains cupboards for storing play materials in elementary schools and in junior high schools. 11. Failure to provide toilets and drinking fountains that are easily accessible from the playground and that with the playroom may be shut off from the rest of the building. 12. Failure to provide an entrance to the section containing community facilities that is easily reached from the street, and is well-lighted at night. 13. Failure to plan these facilities with a view to multiple use since many of the facilities designed primarily for school purposes will be used for community purposes. Very few of the facilities designed for community use will not be usable for the school program.

Community Recreation Building

1. Failure to provide usable or suitable office-dressing suites for recreation staff members. 2. Failure to build the building out of materials that are durable, difficult to deface, and easy to maintain. 3. Failure in planning the building to simplify circulation in order to enable a person to reach any room designed for group use without passing through another activities room. 4. Failure to construct a building beautiful in appearance with rooms of gay color and decoration. No one will care very much for a drab building.

5. Failure to provide sufficient well-placed lighting outlets. Outlets should lead directly to the fuse to avoid the danger of a short circuit which would cause the lights in the building to go out. 6. Failure to plan the building so that each room used for activities may be reached without passing through the social hall. 7. Failure to prepare the building to be used as a warming shelter for skaters and other winter sport groups, if it is located in a city that has severe winters. 8. Failure to provide adequate storage space is an important common error to be avoided. 9. Failure to provide a large building to serve a variety of uses and to accommodate large groups.

College Physical Education Building for Men and Women

1. Locker rooms often contain too many lockers which take up valuable space and are idle most of the time. For sanitary and economical reasons a system such as the tote-basket system should be employed. 2. Failure to place lockers on a concrete riser with a covered base for easy flushing and scrubbing of the locker room floor.

(Continued on page 63)

NEW BOOKS

The Ins and Outs of Baseball, by *Otto Vogel. Published by C. V. Mosby Co., St. Louis 3, Mo. Four hundred and fifty-six pages.* $5.50.

We believe this book to be the book of books on baseball. To begin, there is not a coach in the country better qualified to write a book on baseball than Otto Vogel, who following a major league career, has spent twenty-seven years as Iowa's baseball coach.

By use of a number of illustrations, 167 to be exact, the author delves into baseball in a manner that leaves little to be desired. Vogel has divided this tome into seven parts. The first part naturally would be on defense, and in it Vogel covers such items as fielding and throwing, the pitcher and pitching, the catcher and catching, the battery, play of the outfielder, defensive play and drills, the keystone combination, and individual chapters on each of the infield positions. In the second part on offense, we find batting and bunting, baserunning, and general offensive play covered. The third part takes up management and includes direction of team play, team organization, game preparation, administration of the baseball program, and construction and care of the diamond, the latter being an excellent illustration of the thoroughness of this book. Another section deals with the statistical side of the game such as keeping score charts and records. A further section is devoted to the umpire, while in the last section the author propounds his observations of baseball. These observations were garnered from over thirty-five years of association with the game as high school, college and professional player, and college coach. In fact, so complete is the book, that we cannot find a thing connected with the "American Pastime" that has not been amply and clearly covered.

School Health and Health Education, *by C. E. Turner. Published by C. V. Mosby Co., St. Louis 3, Mo. Four hundred and seventy-two pages.* $3.50.

This is the second edition of this popular book which originally was published in 1947 and subsequently went through five reprintings. This alone is proof of the popularity of the

book and its status in the field it serves.

The Beginner's Book of Horsemanship, *by Dorothy Ford Montgomery. Published by Crossett and Dunlap, New York 10, N. Y. Two hundred and forty-two pages.*

Because a number of schools are beginning to offer riding in their physical education programs, we pass this book along to you. For those schools or individuals interested in riding, this book will prove a real source of information.

How to Improve Your Badminton and How to Improve Your Tumbling. *Published by the Athletic Institute and distributed by A. S. Barnes & Co., New York 16, N. Y. Each 50 cents.*

Two more of the "How To" series from the Athletic Institute's slide films, these books deserve a place in every athletic library. The badminton book was prepared under the direction of Kenneth Davidson and Lenore C. Smith. The direction of the tumbling book was in the capable hands of Newt Loken.

From Here and There

(Continued from page 4)

told at Drake Relays gatherings . . . A little earlier we mentioned that the coaches of the 16 teams in the Iowa Girls' Basketball Tournament graduated on the average from college in 1943. The average for the sixteen coaches in the boys' final is 1941, and like their colleagues in girls' basketball are serving in their fourth year at their present locations . . . We hear a great deal about great coaching records, but oftentimes find some of the best records among the smaller schools. How about Buck Cheadle's record at Roland, Iowa, High School (enrollment 84)? In three years, Roland has won 93, while losing only 4, and has won 74 straight games at home. Cheadle's opponents averaged less than 35 points a game against him this year.

Fifteen Foot Vault

(Continued from page 24)

good jumps and poor ones, and these pictures may not be indicative of their true form. Also, since all individuals are different in build and capacity they cannot be expected to perform exactly alike.

As shown in these illustrations, however, we believe it may safely be said that if either Cooper or Laz had the form and technique displayed by Richards they would be achieving the same heights or greater heights with the same consistency Richards has shown in the indoor meets this season.

In order for Laz to obtain a more effective finish it would be necessary for him to move the standards in toward the runway. This would result in a more vertical vault and he could then capitalize on his tremendous swing and pull-up by keeping his body moving upward instead of outward. Sixteen feet would then be well within his reach since he has already achieved 15 feet, 3 inches by depending almost entirely on his swing and pull-up.

Cooper's two greatest difficulties lie in his failure to bring his pole to a vertical position, plus an inadequate turn. He may be holding too high on the pole for his take-off velocity on this particular jump since speed and hand hold on the pole have high correlation. Apparently Cooper has plenty of shoulder strength and his take-off was fairly smooth. His potential as a 15 foot plus vaulter is very great, and as he improves, his technique should continue to improve his maximum heights.

Richards shows superiority in the finish and has overall fine form. Perhaps his swing is not as pronounced as that of the other two boys. Richards will, no doubt, continue to be the nation's best and most consistent vaulter for the next few years, and has reached a point where he may seriously threaten the existing records in nearly every meet.

With three vaulters such as these the United States should feel fairly secure in the defense of its Olympic Games pole vault title this year.

Gearing Up

(Continued from page 20)

may be compared to a truck trying to outrun a passenger car.

Many times all of us have heard a runner remark that he ran as fast as he could, but he was not competitively fatigued. This is due to lack of gearing up. Had the runner done sufficient gearing up, in his week's workouts, he could have covered the same distance at a much faster pace, and in all probability would have felt less fatigued.

This is accomplished by giving the runner several short distances that will at least add up to his particular race; be it the mile, or the half-mile. These short distances should be taken in succession as quickly as possible. The purpose is three-fold; that is, it provides endurance, speed and recuperative qualities all at once. Furthermore, the boys will find that distance running is not just monotonous lapping the track. This is all done with the knowledge that the athlete has had early season foundation work, which is the backbone of all athletics.

In doing this gearing up or any type of workout, the athlete should exaggerate to get his knees in front with the proper body angle. Having the knees out in front is more important than trying to increase their height. Reaching out with the knees develops a slightly longer stride; whereas, bringing the knees high is almost like running on an endless belt.

In preparing for the gearing up, or any type of workout, the athlete should be properly warmed-up. Too many boys will not take warming-up seriously, even though they are constantly reminded of its importance by their coaches.

One day's workout for a half-miler could consist of the following: The boy should run a quarter, but stride the first 220 yards about .5 seconds slower than his fastest 220. When he reaches the beginning of the second 220 of the quarter mile, he should jump into his sprint speed and go all-out on the second 220. Then he should jog a quarter, shaking himself loose in the meantime; then repeat until he has run four quarters in this manner.

Another method of increasing the tempo of the rhythm is to have the runner run a quarter in this manner — jog around the first curve of a quarter-mile track shaking himself loose (physically) until he reaches the backstretch. Then he should jump into a long rolling stride using vigorous arm action with slightly more than a 90 degree angle, and try to increase the rhythm on each succeeding stride. When he reaches the middle of the second curve, he should extend his knees forward, and come up on the point of his toes in each stride. The runner will be surprised how much reserve the long striding has given him for a driving finish. Always emphasize that he should run twenty yards beyond the tape, and he will never have a tendency to slow down at the finish. Also, a runner should continue jogging and walking at least a quarter of a mile after each race.

When a runner feels himself getting thigh heavy on the over-distance or pace work, he should stride out at a faster pace for 40 to 50 yards. This will enable him to eliminate the heavy thigh feeling, and what we call checking pace will enable the runner to keep his rhythm constant. After all, running is a matter of condition, and a sense of rhythm.

The 440

(Continued from page 30)

of the 440 as a middle distance run to that of assuming it is an endurance sprint. 2) As a change in method from more or less even pace running to that of running the entire distance as fast as will permit one to finish the race with minimum deceleration, and with poise and control.

Without a single exception, every piece of coaching literature that is in our possession, and the list is quite complete, is uncertain in its

approach and torn between the facts of what has been happening on the track ever since 1900 when Maxie Long ran :22.8 for the first 220 or a :47 flat quarter and the physiological theory of efficient even pace running. For example, we have already noted Cromwell's keen interest in Liddell's sprinting methods as contrasted with his belief that the half-miler type should run the first 220 a full second faster than the sprinter type of quarter-miler. This last is not clear thinking for it advises a man of lesser speed to run faster early in the race than it recommends the man of greater speed. No wonder the former is completely run out at 350 yards and is so often defeated. The sprinter does not win so much from his own superior sprinting ability as from his opponent's senseless waste of energy and slow-down finish.

At another point Cromwell[3] states:

"The ideal manner to run the race in championship time is to cover the first furlong at very close to top speed, then stride through the next 100 to 120 yards at a slower pace, and finally to pull up to top speed over the last 100. The slowing down process at the end of the first 220 is necessary to give the runner a chance to recuperate from the fatigue of the first burst of speed."

Godfrey Brown[4], England's record holder for the quarter-mile, was the first one who called attention to the fallacy of this statement. Many runners have refuted its assumptions in their competitive efforts, but to our knowledge, Brown was the first to put it in print. Brown is impressed with what he calls "the McKenley method" of fast first half running, but cites several possible weaknesses.

"A third weakness may well lie in the fact that this method usually implies a marked decrease in effort and speed over the third quarter of the race, with a full-out effort to fight off further deceleration in its last quarter. Such a fluctuation seems to constitute an unnecessary qualification of the even-pace law. I admit that there should be an overall deceleration over the body of the race, but I maintain that the deceleration should be gradual and smooth — like clockwork running down. . . Obviously deceleration is going to be setting in, (during the closing stages of the race—Ed.) and the man who finishes strongly will be the man who can fight off this tendency most successfully. This point cannot be stressed too strongly—that in a correctly run 400 meters the strong finisher is the man who slows down least. In a mile race the strong finisher hits up a speed above the average speed at which he runs his race, but the runner who is able to do this at the end of a quarter-mile has run his race badly, because he has distributed his effort badly."

This statement is consistent with the facts of quarter-miling and should be carefully considered by every coach and 440 man. It is an essentially different point of view from that on which coaches have been writing, although not from what runners have been doing. In considering what pace a particular 440 man should run, the first question has traditionally been at what total time is the athlete striving? Assuming this to be :52, he is then advised to run his first 220 about 2 seconds faster than his second, i.e., :25 — :27.

The approach to the maximum speed-minimum deceleration method is quite different. The first question now is, "What is the maximum speed at which this boy may run 220 or 300 yards?" And the second, "How little does he need to slow down and relax during the first two-thirds of his race to permit him to finish with a minimum of deceleration during the last 100 yards or so?" This method does not think of the race as having three parts—an initial sprint to the 220, a float around the curve, and a finish. Rather, the race is a smoothly co-ordinated unit. Ideally, there is no point at which any change in style or effort occurs. A man simply runs as smoothly and as fast as possible all the way.

Certainly none of these sentences would be any surprise to Mr. Cromwell, or for that matter to many other fine coaches (we speak of Mr. Cromwell merely because he has had the temerity to put his beliefs in writing) for most of his thinking and coaching have been along similar lines. In 1941, at the National College Track Coaches meetings in California, the coaches had been questioning Cliff Bourland, a :46.2 quarter-miler, about the mechanics of his float. Cliff had implied that there were a few minor form differences between his float and his finish. When asked his opinion, Dean Cromwell gave the following answers:

"Question: Dean, what are your impressions of Bourland's float?

"Cromwell: Well, the reason Cliff is a great quarter-miler is because he runs well on his toes all the time.

3. Cromwell, Dean, *Championship Techniques in Track and Field*, p. 77. New York; Whittlesey House, 1934.

4. The Achilles Club, *Athletics*, p. 239. London: J. M. Dent and Sons Ltd., 1951.

He runs like a fine sprinter all the way, and has the ability to carry it. He has been trying to tell you how he carries it. Whether consciously or unconsciously, letting down, or floating, or carrying or striding, he has the ability to do it. . . .

"Question: Does he drop his arms as he lets down?

"Cromwell: Definitely not, he just thinks so.

"Bourland: Well, when I let out my breath (at the end of the initial spurt — Ed.), it seems as if something drops.

"Cromwell: Mr. Champion, you merely drop your tension, and everything else remains the same. You run just the same all the time. I have never seen anything in your carriage or body angle, legs, knee lift, toes, or anything else, change, for the entire distance, but you do unconsciously relax."

What a wealth of psychology and physiology lies in that phrase, "Mr. Champion, you merely drop your tension, and everything else remains the same." A champion should be able to go all the way, without recourse to a let-down or time-consuming float. This is a realistic recognition of the necessity for sprinting all the way with only enough deceleration to maintain relaxation through the finish line. In all his answers, Bourland maintained that there was no particular distance to which he sprinted wide open, "It depends on how I feel. Sometimes I just keep going as fast as I can, and then I let down. Sometimes it takes me a little longer. I can't tell." This is sound, for it implies no definite point, before and after which the form, and probably the pace, is different.

In summary, the quarter-mile is an endurance sprint in which maximum acceleration is first achieved and momentum is maintained to the finish line with the least possible deceleration. As Brown has stated, the strongest man at the finish is not the one who increases his pace most, but rather he who slows down the least. The problem lies then in knowing, in each competition, just what pace will produce this result. For world's champion runners, it is only from .3 to .5 second slower at the 220 than their best effort for the 220 alone. This is not to say that they run an exact distance, say a 220, at a certain pace and then do something different. Rather, they attempt a smooth pace all the way, in which, incidentally, some one might time the 220 point at :20.9 or :21.8.

Triples Balancing

(Continued from page 18)

pendicular as possible. As soon as the top mounter is standing on the feet of the middle man, the bottom man should grasp the middle man's calf. Next, the middle man provides a step with his left hand for the left heel of the top mounter. The top and middle men grasp right hands, and the top mounter places his left hand on the middle man's head. Pressure is exerted downward by the top mounter through the use of both hands, the turn is made, and the top mounter steps to the shoulders of the middle man to complete the stunt after the middle man changes his grip to the calves of the top mounter. Needless to say, adequate "spotters" should be used while this stunt is being learned.

A novel and thrilling method of dismounting from the "three high" is for the top man to lean forward first, next the middle man, and then the bottom man. None of the partners should bend forward at the hips, but each should hold his body in a straight line from head to heels. This position is held as long as possible, until they simply slide off one another's shoulders to land on their feet, and then go immediately and simultaneously into a forward roll.

The stunt shown in Illustration C is called the "high handstand on the feet." A prerequisite for the stunt is that the top and middle men be able to accomplish their parts easily and repeatedly with the middle man lying on the mat rather than on the back of the bottom man. After this level of skill has been achieved, the partners are ready to attempt the full stunt. In this stunt the bottom and middle men get into position in the following manner: The bottom man stands behind the middle man and faces him. Then the bottom man bends over to place his neck at the base of the spine of the middle man. The middle man bends backward, and the two hook arms as is shown. Then the bottom man lifts to bring his back to a near horizontal position as the middle man swings his legs upward into a perpendicular position. The bottom man then places his hands on his thighs and lifts his head as high as possible. If the top man mounts from the bottom man's left, he should step on the bottom man's thigh with his left foot, meanwhile grasping the far leg of the middle

man. Then the top man steps to the abdomen of the middle man, first with his right leg, and then his left. Next, the top man grasps the feet of the middle man at the heels, pushes himself into a sitting or "L" position and from there into the handstand. During the press into the handstand, both the middle and top men should exert effort to prevent the middle man's legs from abducting. The bones of the middle man's legs, not the muscles, should be made to carry the bulk of the weight.

To dismount from this position, the top mounter should carry his weight forward and bend at the waist, bringing his legs between his arms, weight forward, and bend at the waist, bringing his legs between his arms as the middle man allows his legs to come forward slowly. This will bring the top mounter to a stand on the mat in front of the bottom man. The bottom man then bends over to place the middle man on the mat, and comes to the erect position.

The next stunt is called the "two-high on the feet," (Series D). It is started with the bottom man lying on his back, legs bent, knees against his chest, and lower legs perpendicular. He may help to keep his legs in this position by pulling the backs of his legs down with his hands. The middle man, standing at the bottom man's buttocks and facing him, jumps to a stand on his feet. This is not as difficult as it appears. The top mounter should endeavor to jump almost straight up so that there is a minimum of forward momentum. By drawing his legs upward he may make the jump with a minimum of spring.

Next, the bottom man should place his hands, palms up, on the mat at the side of his head. The top mounter steps into them, grasps the hands of the middle man in a crossed grip, and is pressed by the bottom man into the position shown in Illustration 1. Then the top mounter steps from the hands of the bottom man to the feet of the middle man. Extreme caution should be exercised during this shift in order to keep the weight centered and to avoid any sudden movements. The bottom man must be able to check any movements which are made. If the movements occur too suddenly or are too far off center it is impossible to complete the stunt, and a tumble is inevitable. In the position shown in Illustration 2 both the top and middle men should stand erect with no bend at their waists or hips.

Illustration 3 shows the method of coming around from the double stand on the feet into the "two high" position. The middle man places his left hand at his right thigh to provide a step for the top mounter. Then the top mounter places his left foot on this step, and with his right hand holding the middle man's right hand pulls himself up and around to place his right foot on the right shoulder of the middle man. The two then grasp left hands to continue up into the stand. Next, the middle man grasps the calves of the bottom man to pull down and forward with his hands, and presses his head backward to wedge in the top man's legs, thereby making the two units more stable. This completes the stunt (Illustration 4).

To dismount from this position, the middle man should grasp the hands of the top man and lower the top man to a sitting position on his shoulders. Then both the top and middle men lean forward, and the bottom man allows his legs to move slowly forward toward his head. When the bottom man's feet are about one foot from the mat, the middle man slides off them to a stand on the mat, bends forward to place the top mounter on the mat, and comes to the erect position. Meanwhile, the bottom man does a neck spring to his feet.

Series E shows the "pitch into the high hand to hand." Preparatory to the pitch, the man doing the pitching should stand with his legs well bent, one foot in advance of the other, shoulders back, and his back perpendicular. The grip shown in Diagram 1 will enable him to get the highest follow-through on the pitch. By interlacing his fingers the man doing the pitching will be able to bring his hands to a point opposite his chin. The recommended grip will enable him to follow through with the pitch until his hands are well over his head.

The man who is being pitched should take a few steps toward the pitcher, place his hands on the pitcher's shoulders, and place one of his feet in the pitcher's hands. Simultaneously, and in one continuous explosive motion, the pitcher should extend both of his legs and pitch the top mounter over his head. As the pitcher does this, the top mounter should extend both his legs and push with his hands against the pitcher's shoulders. Considerable practice will be required in order to perfect the timing for this stunt.

It is necessary that the catcher bend

over backwards as far as possible in order to see the flyer early enough for an effective catch. He should catch the flyer with his arms bent slightly in order to take up the shock. The flyer and the catcher should watch one another's hands throughout the stunt. Both partners should extend their arms after balance has been secured to show a proper high hand-to-hand position.

Changing Defenses

(Continued from page 13)

Now, let us run our 37 off-tackle play from the T against the five defenses and see how it works. Against the five-man line, Diagram 12, the No. 4 back goes to the 9 zone, the center takes the man on his head, the right guard blocks in the G zone, the right tackle in the 5 zone, and the right end in the 7 zone. Against a six-man line, Diagram 13, the center has no one on his head so he goes through, the right guard blocks in the G zone, the right tackle in the 5 zone, the right end in the 7 zone, and the No. 4 back in the 9 zone.

Against the seven-man line, Diagram 14, the center blocks the man on his head, the right guard blocks in the G zone. Now, the right tackle, on a switch, blocks in the 7 zone, and the right end on the switch blocks in the 5 zone. The No. 4 back continues to block in the 9 zone.

Running the same off-tackle play against the eight-man line, Diagram 15, finds the center with no one on his head so he goes through. The right guard continues to block in the G zone, the right tackle and right end on a switch block in the 7 and 5 zones, respectively. Against the other defenses the No. 4 back blocks in the 9 zone.

When the defense deploys into a 5-4 setup, Diagram 16, the center will find a man on his head and will block him. The right guard blocks in the G zone, the right tackle takes the man in the 5 zone, the right end blocks the man in the 7 zone, and the No. 4 back takes the 9 zone.

Signal System and Blocking

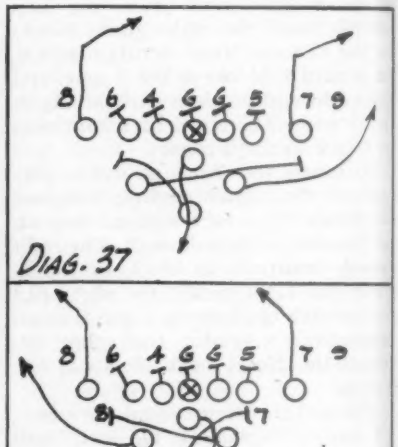
The quarterback has the best seat in the house; consequently, he makes the call and his call affects all of the players on the offensive team. His call consists of "set, defense, ready, hep 1, hep 2." He uses "quickie" or change-of-pace calls which may be

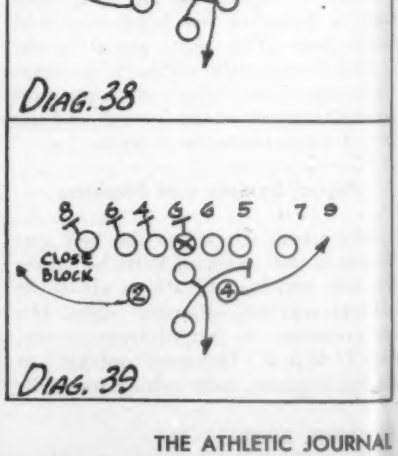
called on set, the defense number, or ready.

We use seven different types of blocking and the quarterback determines the blocking by his call. The first of these blocks which we will discuss is roll blocking (Diagram 17). This block is ordinarily used on the two to five yard line in order to score, or when we are in need of a first down with short yardage necessary. The linemen form on the center, forming an apex, and block shoulder-to-shoulder. There is no particular assignment, everyone moves forward in a strong manner and blocks the man ahead of him. The ball-carrier looks for the opening.

Next, we have cross-blocking, Diagram 18, which we use in the 3 hole when the tackle is tight or in the 7 hole when the tackle is wide. The right tackle has a difficult block to make in order to take his man in the 5 zone out so a switch is called, with the right guard crossing first, and the right tackle opening the door and going to the man in the G zone.

Diagram 19 shows cross-blocking in the 7 hole. The right tackle finding the man in the 5 zone hard to take in calls for a switch, with the result that the right end takes care of the





5 zone, and the right tackle blocks in the 7 zone. The No. 4 back goes to the 9 zone.

We use spread-blocking whenever the tackle is wide in the 3 hole or on our tackle's head, or when the tackle is inside or on our tackle's head. Diagram 20 shows the spread-blocking on our 43 play. The right tackle can now handle a man in the 5 zone so the right guard helps the center in the G zone. The left guard goes around the horn to block in the G zone. The right end takes care of the 9 zone. Another illustration of spread-blocking is shown in Diagram 12.

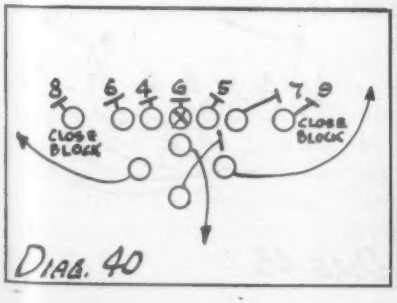
Fan blocking is used when the No. 5 man is inside our offensive tackle in the 3 hole or when the No. 7 man is inside our offensive end in the 7 hole. Diagram 21, our 43 play, shows fan blocking in the first instance. The right tackle has difficulty blocking the man in the 5 zone out because of the poor angle so he calls a fan. The right guard goes to the 5 zone first; the right tackle opens the gate and goes to the G zone; the center blocks the man on his head.

Now, in the other instance, Diagram 22, the right end finds the man in the 7 zone dangerous, the right tackle calls a switch, and after the right end opens the door, the right tackle takes the No. 7 man. The right end goes after the 5 zone, the right guard takes the G zone, and the No. 4 back takes the 9 zone.

We use what we call tight blocking when the No. 7 man is coming down the line in our 7 hole. We only call for this blocking when we are using a 7 or 9 play. In Diagram 23, the right end finds the 7 zone very tight, the quarterback calls "tight," the right tackle takes the 5 zone in, the right guard goes to the G zone, and the No. 4 back goes to the 9 zone.

Diagram 24 shows our veer blocking which we use frequently against a six or eight-man line.

This brings us up to our pass protection blocking in which we have A blocking, B blocking, C blocking, trap blocking, close blocking, solid blocking, and aggressive blocking.



DIAG. 40

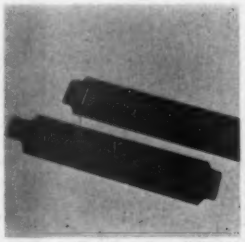
NEW ITEMS IN EQUIPMENT AND IDEAS

For further information see Service Coupon

NOW being distributed by that famous company, A. G. Spalding & Bros., is their newest addition to the rubber-covered ball line, the Spalding 160, pictured here, and the Reach 260. Both of these balls are machine tested for perfect roundness and have a tough long-wearing rubber cover. They also feature wide channel seams, natural raised pebbling for firmer grip and better finger-tip control. A. G. Spalding & Bros., 161 Sixth Ave., New York 13, N. Y.

THE principle that air is the best shock absorber is incorporated in this new type shoulder pad. Underneath the shoulder flap is the famous Kantleek valve and the pad is inflated with a common needle and pump used for inflated balls. The pad is made of buna rubber which is extremely non-porous. One inflation will ordinarily last throughout a season. Sponge rubber shoulder and neck pads, coupled with the fact that all fiber edges are covered with top grade leather make this a long-wearing, comfortable, and economical pad. May be laundered in a home washing machine. Aire Fit Pad and Brace Co., Elyria, Ohio.

ELASTIKON is the name of this new type adhesive tape. It is made from uniformly woven cotton elastic backcloth, spread with a surgical adhesive. The elasticity of this tape makes it ideal for close-fitting support such as sprains, strains, and fractures. It is also ideally suited for dressings applied over joints such as elbows, knees, and shoulders. It is available in rolls 12″ x 5 yards, stretched, and is supplied in one, two, three, and four inch cuts. Johnson & Johnson, New Brunswick, N. J.



THIS originally designed Safety Belt features two-part construction, fastening together, front and back with non-slip buckles. The wide inside web increases comfort by eliminating sharp edges and is self-forming to the contour of the body. Best of all, it is so light in weight (20 oz.) that the student does not have to compensate for loss of weight when working without the belt. Size A for waists 18 to 22 inches; size B for larger waists. Sidlinger Products, 3514 Elm Ave., S.E., Cedar Rapids, Iowa.

THIS valuable addition to the field of athletic clothing is a baseball neck-warmer, designed for wear under the baseball uniform shirt, during training, warm-ups, and cool weather games. It allows full freedom of arm and body movement while keeping the player warm, and affords protection against colds and drafts. It is made of 100 per cent virgin wool worsted and features a high rib-knit collar. Yearite Sportswear, 114 Bleecker St., New York 12, N. Y.

A shoulder pad fitted to size for each individual player is the latest advancement for comfort and safety in football equipment. It was found that increased width across the shoulders should be graduated in proportion to normal increases of the human body. On this basis shoulder pads were made up in sizes according to widths of shoulders. Sizes from 32 to 54 are available. Available in Varsi-T-Line (flat pads); Varsi-T-Back (back and end pads); Varsi-T-Defender (outside cantilever); and Varsi-T-Blocker (inside cantilever) models. Wilson Sporting Goods Co., 2037 N. Campbell Ave., Chicago 47, Ill.

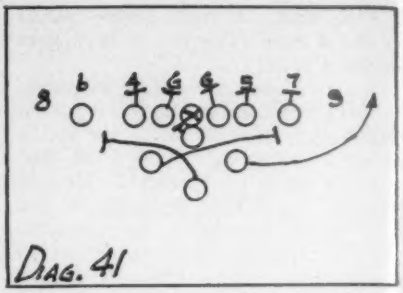
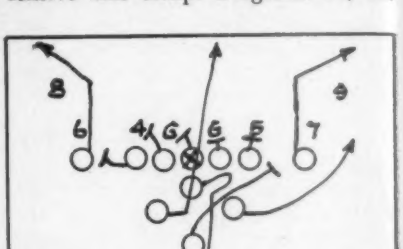


Diagram 25 shows our A pass blocking, Diagram 26 our B pass blocking, and Diagram 27 our C pass blocking. The latter is used when four men are out.

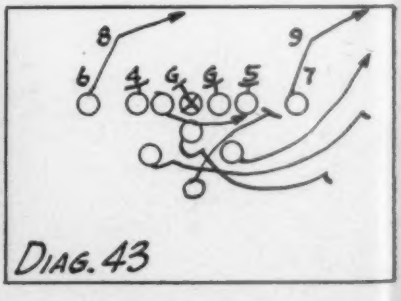
Diagram 28 shows our A pass blocking against a five-man line, Diagram 29 shows our B pass blocking against a five-man line, and Diagram 30 our C pass blocking against the same defensive line setup. Diagrams 31, 32,



and 33 show our A, B, and C blocking against a six-man line.

The next three Diagrams, 34, 35, and 36, show the three pass blocks against the seven-man line. Diagrams 37, 38, and 39 show the three pattern blocks against an eight-man line. In pass block C, the quarterback may keep the halfback in to block by asking for a No. 2 solid block or No. 4 solid block.

Illustrations of our pass protection close blocking, and our pass protection solid block are shown in Diagrams 40 and 41. Pass protection trap blocking is shown in Diagram 42, and the aggressive block which we use in our running pass is shown in Diagram 43.



Errors in Planning Facilities

(Continued from page 50)

3. The main gymnasium floor should not have to be crossed to enter the locker room directly from the outside playing fields or corridors. 4. Failure to provide toweling rooms next to the showers. 5. Failure to provide adequate mechanical ventilation at strategic points in the physical education building, such as the locker room, gymnasium, etc. 6. Failure to have hanging overhead showers at shoulder height, individually controlled.

7. Failure to provide facilities for hanging towels above the group shower heads, or in the toweling-drying room. 8. Failure to provide adequate facilities for the repairing and servicing of equipment. 9. Failure to provide and equip a room for drying team uniforms. 10. The installation of an insufficient number of storage rooms is a common error. 11. Bleachers often are not recessed in the walls and, therefore, do not present a flush and smooth surface to use for other activities when folded. 12. Buildings are often constructed without consideration for probable future expansion. 13. Failure to provide needed mechanical ventilation in the locker rooms, toilet rooms, gymnasium, and especially in swimming pools, shower rooms, and laundries to control humidity. These rooms should be designed according to the specific needs of each area.

The Field House

1. Special attention should be given to the installation of leak-proof skylights. 2. Doors should be wide enough to accommodate a truck to carry equipment either in or out of the field house. 3. Failure to design the field house so that the normal flow of traffic will not cross activity areas. 4. Failure to avoid congestion by not having about two-thirds of the lobby planned for accommodating box offices and ticket purchasers, while the remainder is reserved for ticket holders who should have direct access to admission gates. 5. Failure to install a sufficient number of drinking fountains located so that they will not interfere with the circulation of the crowd.

6. Failure to erect a small building with dressing, showering, and toilet facilities, if the field house is not adjacent to the gymnasium, rather than using space for such purposes which might be utilized more advantageously for activity units. 7. Concessions often are located where they interfere with the normal flow of traffic. 8. Failure to provide for a variation of ventilation within the areas provided for the spectators. The spectator areas will probably need to be ventilated more rapidly than will the participants area in order to maintain a comfortable temperature.

Screwball Error

TO the many eagle-eyed observers who caught our error in Otto Vogel's masterpiece in the April issue a "well done." To the many who bind their copies of the Journal for future reference, please mark this change. On page 8 the reference to Illustration 4 should read Illustration 5, and the reference to Illustration 5 should read Illustration 4.

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APRIL, 1952

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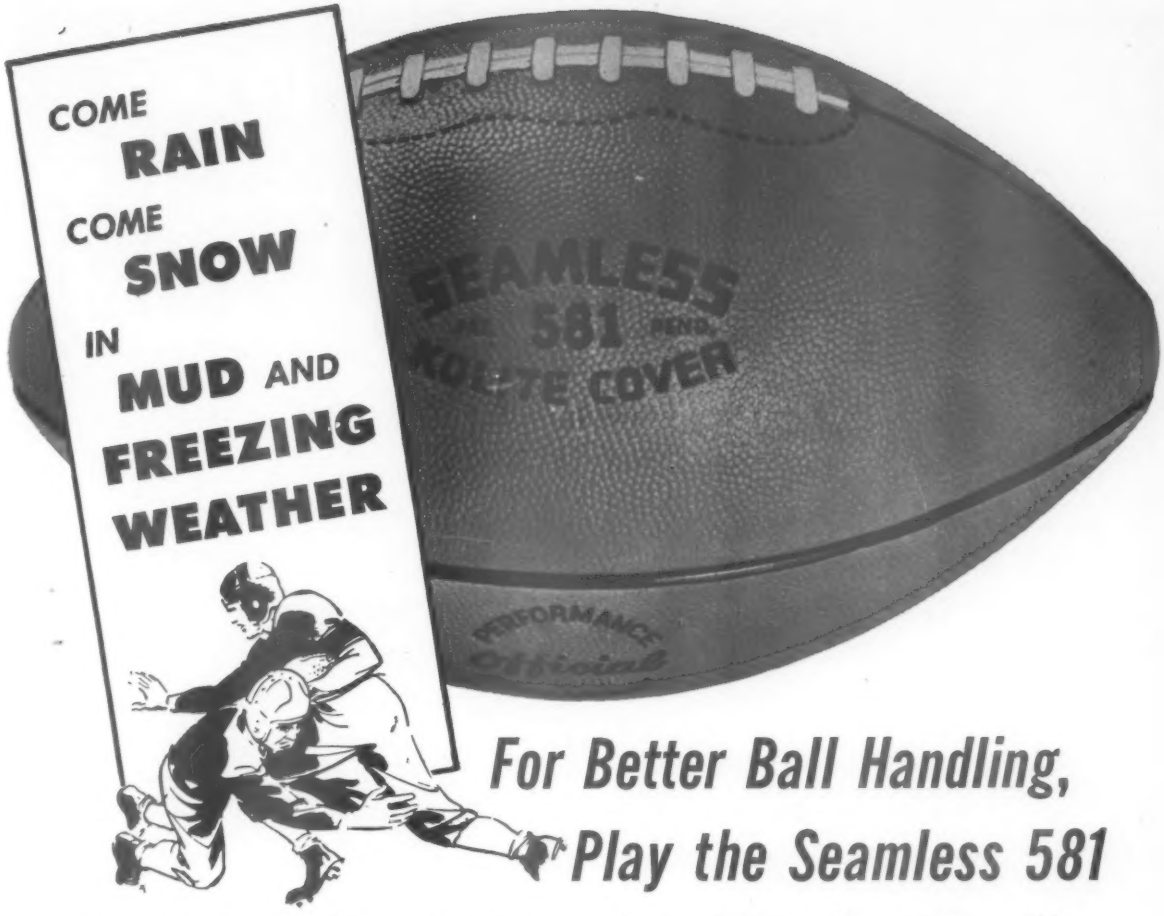

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